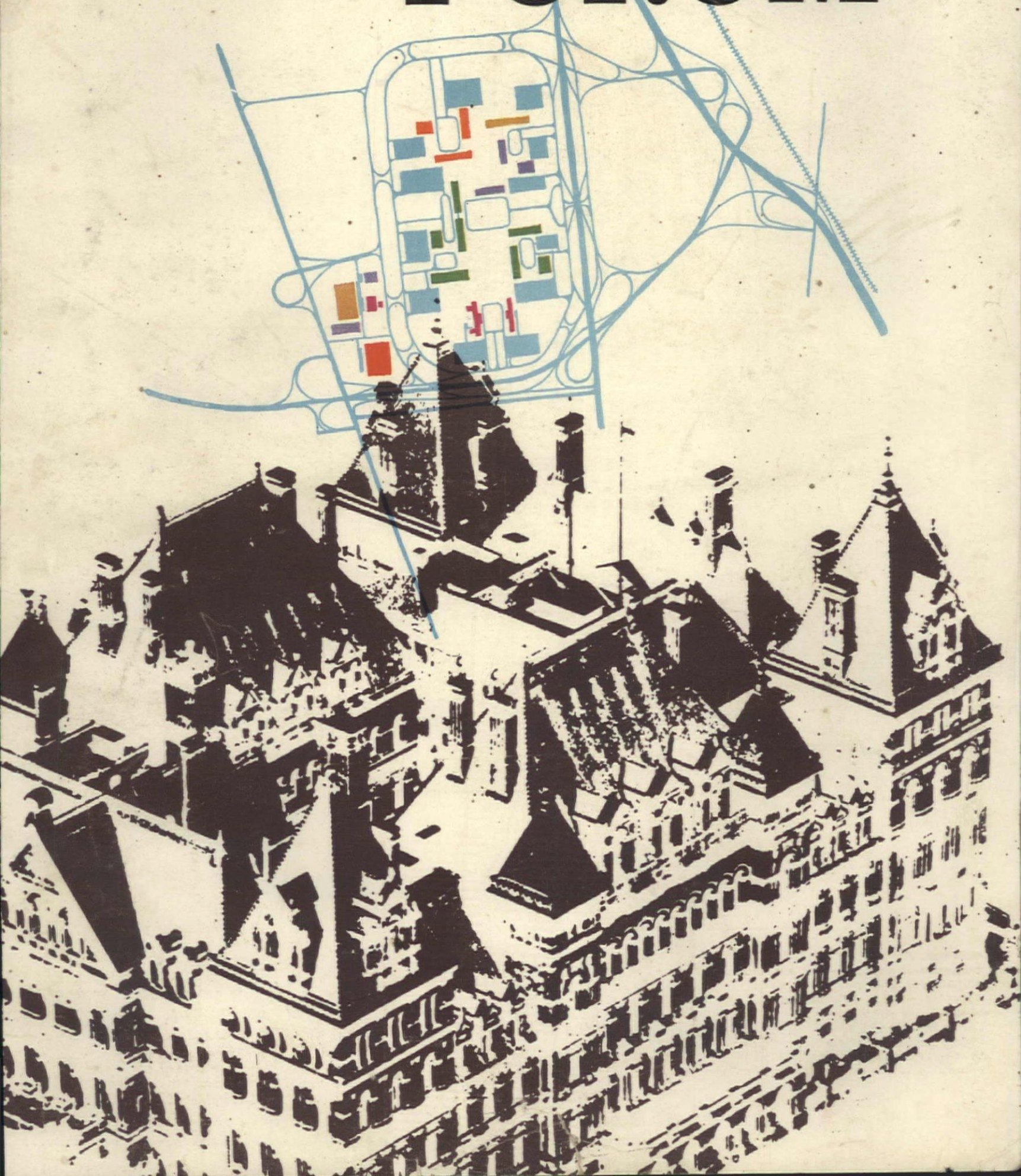


Architectural Forum / the magazine of building / April 1957

FORUM



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What is the value of a little open space in a crowded downtown district? For the Chase Manhattan building it led to wide-span construction, 6% more desks per floor and a better view of a handsome façade.

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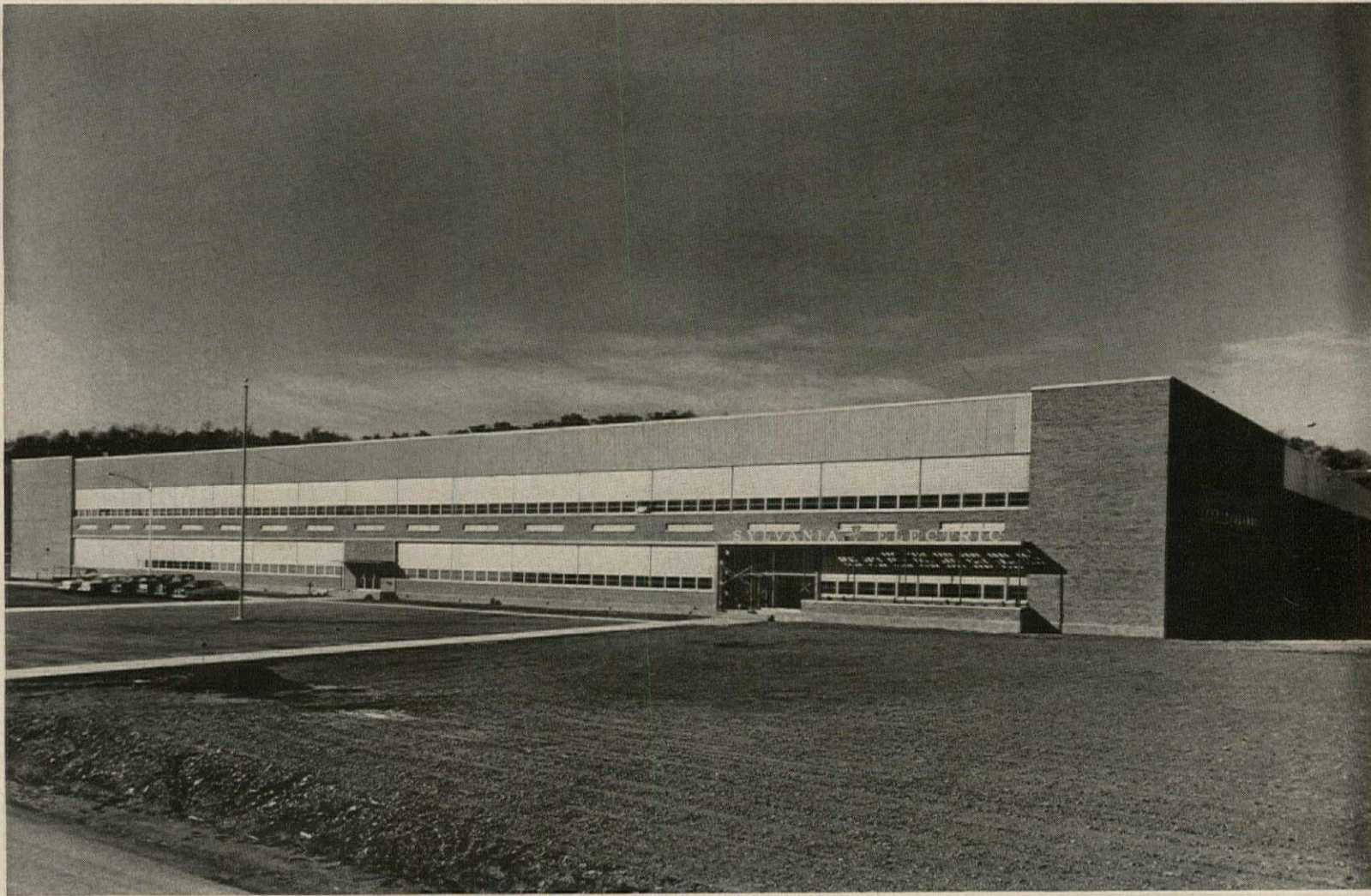
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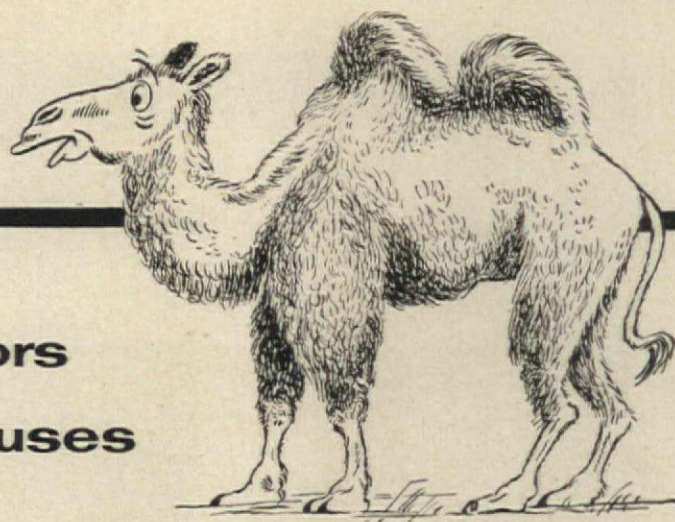


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tion of each day. A solarium is provided on each floor and the entire building is air-conditioned. The nurses' home houses 150 students. A lecture hall adjoining it accommodates 250 persons. A smaller hall seating 125 is situated in the hospital and conference rooms are located on all floors. Everywhere are evidences of the high standards prevailing during all the many planning and equipment decisions, including the adoption of SLOAN *Flush* VALVES for installation throughout the buildings.

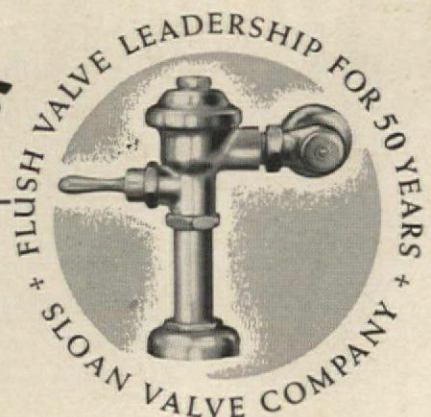
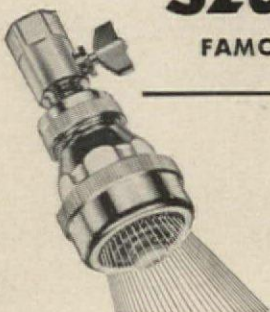
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Urban renewal appropriations trimmed, program jeopardized in Washington budget battle

Urban renewal and several other construction programs were among the innocent bystanders in danger of being most seriously maimed in the battle of the bulging budget that raged in Washington last month.

The GSA lease-purchase construction program cutback ordered a month ago (AF, March) turned out to have been only the opening move in an administration effort to trim the plump \$72 billion budget proposed by President Eisenhower only three months ago and thus make any future Treasury deficit financing easier. The heat was turned on all federal agencies to effect savings, but at the same time it looked as if the administration's political strategy might be defined as follows: appear to be in favor of all essential and beneficial spending, but let Congress assume the responsibility and risk bearing the brunt of any recriminations from those who were offended when many of the needed cuts were made.

At month's end there was no way to forecast what the ultimate effects of the battle would be. But here was how some construction programs were being temporarily hamstrung or curtailed:

Urban renewal—HHF Administrator Albert M. Cole on March 15 asked Congress to appropriate only \$175 million for the year beginning July 1, compared with \$250 million recommended in the President's January budget message. He conceded this would really only cut URA's contract-signing or "check-writing" ability for the present, because actual disbursements under new contracts usually do not occur for several years.

Nevertheless, there was a genuine threat to orderly urban renewal in such a reduction. It would mean many comprehensive projects in the planning stage would have to be shelved or abandoned, because cities would have to face the question whether it was feasible or worth while trying to mount important renewal programs if federal grants were going to be made a matter of caprice in appropriations battles from one Congress to another in the future. URA, in fact, was already working under a temporary priority system in making commitments for new grants,

pending assurances that it would receive further authorizations.

College housing—The January budget message recommended \$175 million; last month Cole requested only \$150 million.

Lease-purchase—At the committee hearings on the curtailment of this program a month ago, GSA Administrator Franklin G. Floete disclosed that he had requested authority to raise the yield on such financing to approximately 5% but was vetoed by administration fiscal advisers. There was no indication what new legislation might finally be adopted on this program. The unhappy alternative to lease-purchase would be a direct appropriations program, but resort to that would only increase prospective budget deficits.

Miscellaneous—In slashing \$500 million from the Independent Offices Appropriations bill for 18 different government agencies, the House trimmed hospital construction funds for the VA by \$7.5 million, and voted GSA only \$65 million instead of the \$85 million it had requested for its air-conditioning and modernization program in government buildings.

RENTAL HOUSING

FHA to end its Sec. 220 3% capital freeze

Two important policy changes by FHA that should greatly help urban renewal area apartment builders were disclosed at the Michigan State University "working conference" on renewal problems sponsored by HHFA and the National Association of Housing and Redevelopment Officials in East Lansing a month ago.

W. Beverly Mason, in charge of FHA's Sec. 220 urban renewal mortgage insurance program, said new regulations are being drafted that will only require a builder to leave a cash investment of 3% of the cost of a project tied up in the corporation for a period of three years after completion. This is a significant reversal of the new rule freezing 3% cash into the

project for the full life of the mortgage as announced by FHA Commissioner Norman P. Mason last October. At that time, this rule was instituted in conjunction with the regulation by which FHA finally allowed Sec. 220 builders a 10% profit and risk allowance in calculating project costs and mortgage amounts, as directed in last year's housing act amendments. Coupled with cost-certification, Commissioner Mason declared at that time, the permanent 3% capital freeze-in was intended to help "assure the integrity of Sec. 220 operations . . . [and] adequate equity investment by sponsors".

At East Lansing, Sec. 220 Director W. Beverly Mason also referred to another sore point among FHA rental builders—their inability to increase rents to cover higher operating costs until approved by FHA. Agreeing that builders would feel "more secure" if their FHA charters gave them an automatic right to raise rents under these circumstances, Mason said such a provision "is now clearly spelled out" in the latest revisions being made in the FHA builder's charter. When formally approved, such a provision will end one of the worst obstacles to FHA apartment building (AF, Nov. '56).

San Francisco advancing huge downtown project

The automobile dominated schematic plans for redevelopment of San Francisco's old produce market district by Skidmore, Owings & Merrill, released last month by the City Planning Commission.

Through the middle of the area would run a long, block-wide mall separating entrance and exit ramps from the two-level elevated Embarcadero expressway now under construction. In its midsection this landscaped mall would be two stories high—forming the roof over a complex of basement and two-story parking garages for some 4,500 cars (see cuts).

Besides providing light and air in a plan that would cover only 25% of this 78-acre redevelopment site with structures, this central mall would serve as a park for workers in a group of new office buildings south of the mall that would expand the city's present financial district (foreground in site plan). It would also separate this commercial

area from new apartment buildings on the north side of the mall. Over a period of eight years these proposed office buildings would give the city an additional 2.4 million sq. ft. of office space, and 1,600 apartment units.

The S-O-M plan was financed with \$45,000 subscribed by a group of civic-minded business leaders headed by J. D. Zellerbach and Charles Blyth. They acted to speed this downtown rejuvenation project a year ago after the city rejected a Webb & Knapp proposal to prepare redevelopment plans for this area, provided it was given certain bidding preferences for the land.

The S-O-M plan assumes the state eventually will provide funds for a Ferry Building park in front of the Embarcadero expressway into which the redevelopment area plaza-mall would merge. Some observers, however, speculated whether state park authorities would object to expressway ramps across a park, and withhold such funds. Except for the possibility of a public controversy arising out of this ramp-location problem, the city's planning and redevelopment authorities were hopeful the entire scheme could be cleared by the city in time to qualify for federal urban renewal funds and activation before the end of this year.

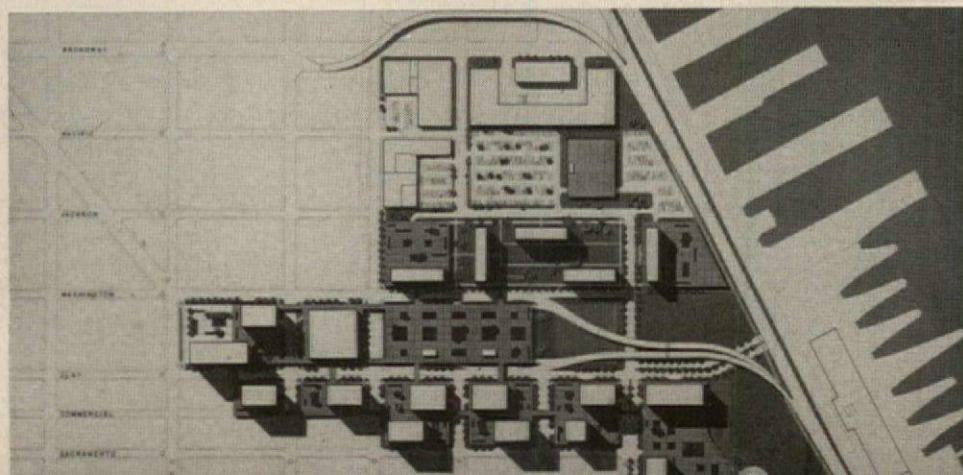
City planning, renewal fellowships started

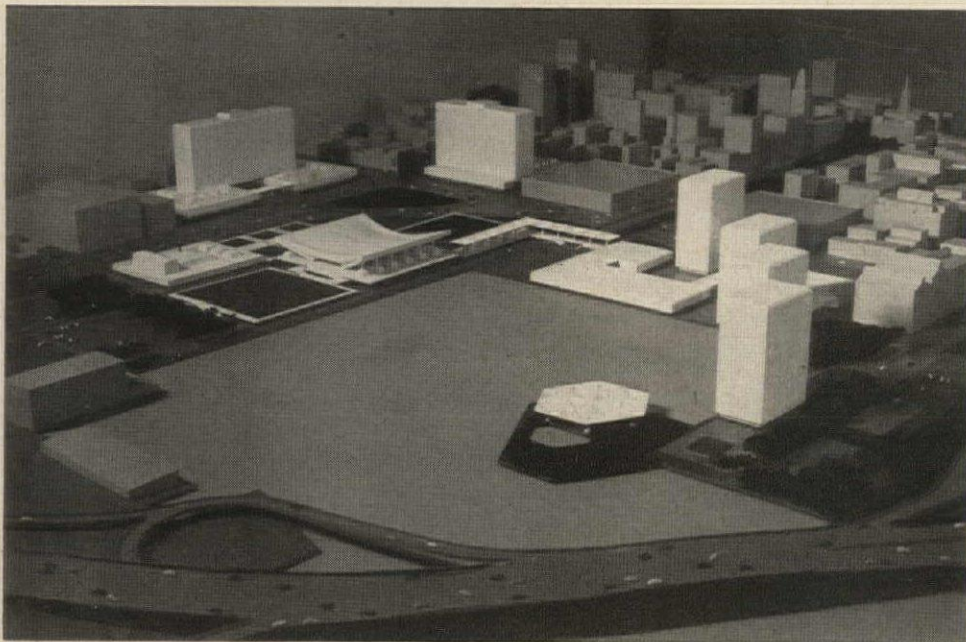
In growing realization of the seriousness of urban decay, more and more municipalities see the need for trained personnel in urban renewal and city planning. "This year," says Theodore V. Houser, board chairman of Sears, Roebuck and president of the Sears, Roebuck Foundation, "only 170 graduate students will enter this field though an estimated 500 are needed, and the demand will continue to rise."

To help meet this emergency, the foundation will start a program of graduate fellowships in city planning and urban renewal this fall with a \$17,500 grant for the first year, \$35,000 annually thereafter. This is expected to provide up to \$2,500 a year for each fellow, and unrestricted grants of \$1,000 per year per fellow to the institutions they attend. Usually fellowships will be awarded for two years, but will be limited to graduate schools of city planning with degree programs.



SITE PLAN AND CENTRAL MALL FOR SAN FRANCISCO REDEVELOPMENT





SCHEMATIC PLAN FOR HARBORSIDE CIVIC CENTER IN BALTIMORE

Harbor site is favored for Baltimore civic center

Baltimore is losing no time getting ready to build "a modern civic center for sports, exhibitions, theatrical, educational and cultural purposes, and for a public auditorium or convention hall," for which it approved a \$6 million bond issue last November.

Last month Pietro Belluschi completed a site location study that recommended developing the center around a portion of the inner harbor four blocks from City Hall (to right in cut). One group already on record in favor of this site: the Baltimore AIA chapter.

Prepared in association with Eduardo Catalano, Belluschi's report evaluated cost limitation factors and other considerations involving a number of proposed sites. "The conclusions with regard to all 'suburban' sites," it declared, "were that they did not satisfy enough of the criteria. The center clearly belonged downtown." Several of the criteria that resulted in the recommendation for the inner harbor site were: easy accessibility to core city facilities such as hotels, offices, restaurants, etc.; visibility for "landmark" construction that could be seen by great numbers of people and become a "proud symbol" of the city; a location that could serve as "a strong stimulus, rather than a hindrance, to future general renewal by private enterprise of the city's central area."

The schematic model unveiled last

month contemplates a small, hexagonal maritime museum (foreground in cut), several supplementary high-rise private apartments (r), an arena-coliseum (concave roof), and an adjacent auditorium (l). Two big new buildings in background represent new hotel and government buildings that could be developed advantageously on the periphery of the open, landscaped civic center area.

The city has also already commissioned A. G. Odell Jr., of Charlotte, N.C. to design the coliseum-arena, to seat 10,000 persons and provide 100,000 sq. ft. of exhibition area, to be built within a \$4 million budget. This will have some design similarity to his famous Charlotte coliseum, says Odell, but will also "have a character all its own."

PROFESSIONAL RELATIONS

FLLW fighting to design new Arizona capitol

Never an architect to avoid a controversy, and guaranteed to enliven every one with his barbed and acid comments, Frank Lloyd Wright was skirmishing on two fronts last month. In Arizona, looking to the future, he was endeavoring to carry to the people the proposal that his designs for a new state capitol be used instead of others being considered by various state authorities. In Chicago, looking to the past, he was

rallying support to prevent the threatened demolition of his 49-year-old Robie House (see editorial, p. 107).

Legislative complexities confused the Arizona capitol picture. Since 1952 the state has been mulling over the problem of enlarging its existing capitol or building a new one. Last year the problem was turned over to a new State Planning and Building Commission, which retained Associated State Capitol Architects, a group of four offices that have been working on various aspects of the state's office space and capitol problem since former Governor Howard Pyle engaged them five years ago. The members of ASCA: H. H. Green; Lescher & Mahoney; Lew Place; Edward L. Varney Assoc.

After the Planning and Building Commission rejected one plan for a domed shaft capitol by ASCA, this group offered a second central shaft plan, with two domes on separate low wings for the House and Senate (see cut). The commission accepted interior designs for this proposed structure, but not the exterior, pending decisions whether there should be windows on more than one side (because of air-conditioning factors), and other details. Subsequently the Senate approved this plan, 27 to 1, but in the House it never got out of committee before the legislature adjourned last month. Until it reconvenes again next January, any final acceptance of the ASCA plan is apparently left in a no-man's land of suspended animation.

But shortly before the legislature adjourned Wright blew up a storm in this desert state he adopted for his winter domicile and school "Taliesin West." With typically caustic Wright remarks he jibed at the ASCA plans. Among his milder comments: "A capitol in the sun country should not re-

continued on p. 9



ASSOCIATED ARCHITECTS CAPITOL PLAN

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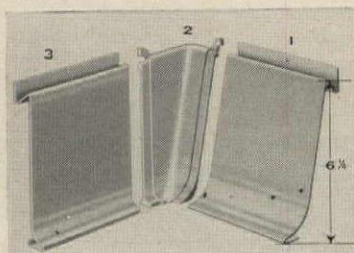
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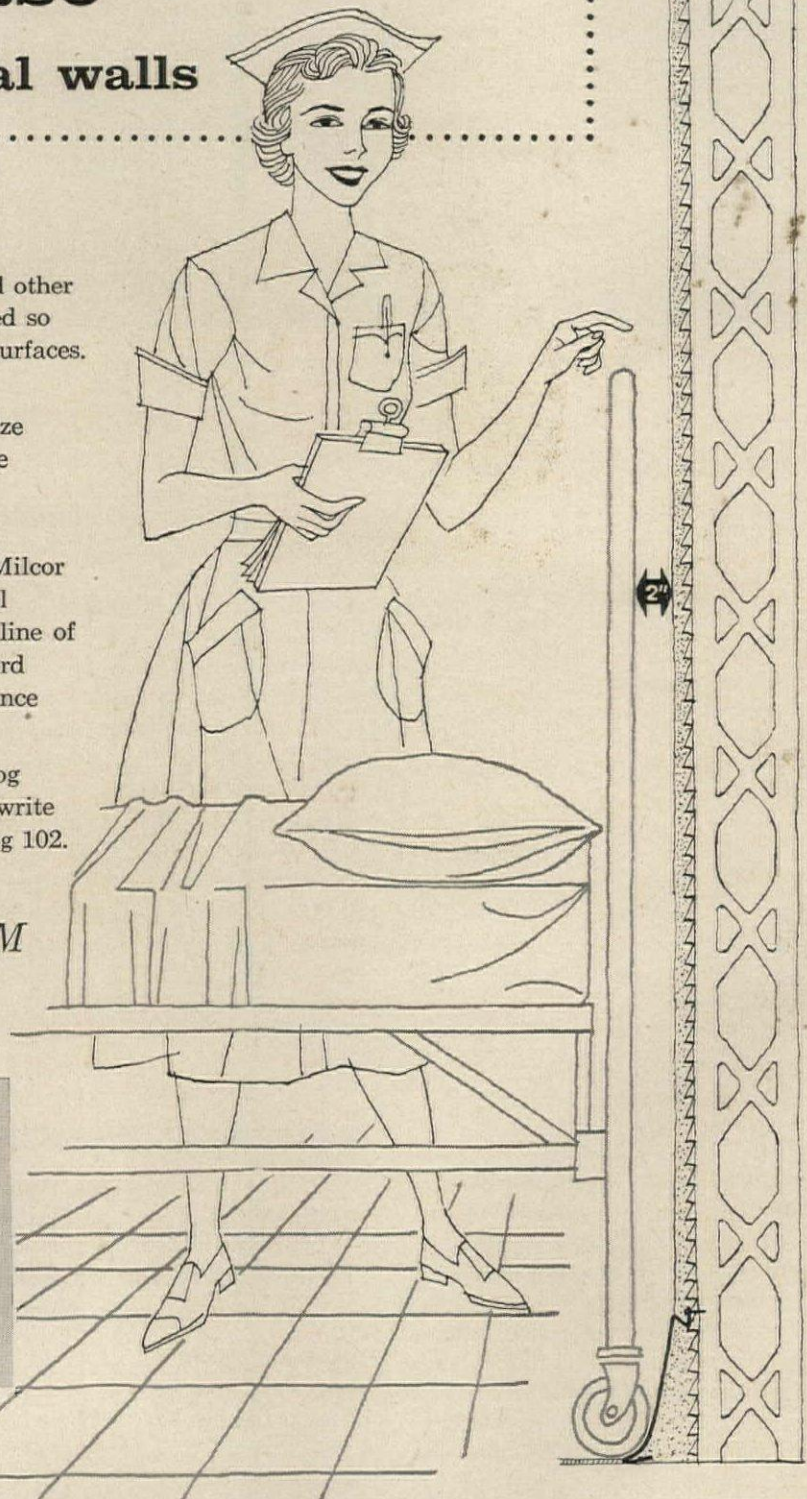
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MT-1

semble anything in New York."

Wright released sketches of the kind of capitol he felt would be most appropriate for Arizona (see inset, p. 108).

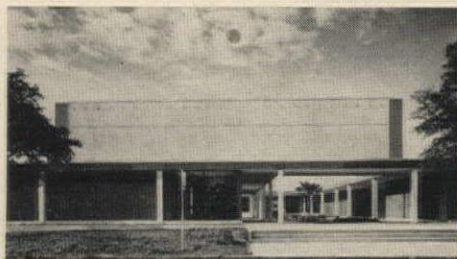
In the ensuing turmoil, planning and building commission officials maintained a discreet silence. Albert B. Spector, attorney for ASCA, said his clients had been working on a non-partisan basis for the state for several years "in accordance with the ethical standards of the AIA." But he could not completely hide their feelings, and after pointing out that the ASCA plans were then still before the legislature, added: "From the point of view of legal propriety and ordinary professional ethical standards it would be improper for ASCA to engage in a public controversy with any egocentric individual who believes that only he has been endowed with the touchstone of architectural insight. This kind of running controversy could only result in slapstick comedy for the benefit of first page readers. It would not serve the goal of a sound architectural solution for a complicated problem at a down to earth cost."

How the dispute would finally be resolved was far from clear at month's end. But knowing Phoenix observers had their doubts whether Wright could obtain the 25,000-odd signatures of registered voters that would be needed to initiate the popular vote he desired.

Robie House fate uncertain

In a statement last month the Chicago Theological Seminary confirmed its intention to demolish the Robie House to help provide a site for a new dormitory for married students being designed by Holabird & Root & Burgee. It expressed its regret for such prospective action, but explained that it found "it economically impossible to maintain [it] as an architectural monument. . . . No practical solution to the problem has been proposed."

But by month's end several new campaigns to save the house were being mounted, and Wright was taking a leading role in the preservation movement. "I think this is a special species of vandalism," he declared. "To destroy this would be like destroying a great piece of sculpture or a great work of art." He also wired the seminary an offer to "go under bond to put the house back in condition for \$15,000"—contrasted with the seminary's statement that "due to structural deterioration, the building requires an immediate expenditure of \$65 to \$75,000, according to an engineering estimate."



COURTHOUSE AND JAIL, Bryan, Tex., by Caudill, Rowlett, Scott & Assoc., of Bryan.



OFFICE BUILDING for Middlesex Mutual Building Trust, in Waltham, Mass., by Anderson, Beckwith & Haible, of Boston.

ARCHITECTURE

AIA gives 6 First Honors, 14 Awards of Merit

In one of the warmups for its centennial convention in Washington next month, the AIA named six First Honor Award winners, and 14 Award of Merit winners in its ninth annual competition for outstanding American architecture.

Architects who were multiple award winners this year were Caudill, Rowlett, Scott & Assoc., of Bryan, Tex., and Antonin Raymond and L. L. Rado, of New York, who each captured one First Honor Award and one Award of Merit, and A. Quincy Jones and Frederick E. Emmons, of Los Angeles who received two Awards of Merit.

First Honor Awards were won by Anderson, Beckwith & Haible of Boston for their office building for Middlesex Mutual Building Trust in Waltham, Mass.; by Warren H. Ashley of West Hartford, Conn., for his junior-senior high school in Greenburgh, N.Y.; Eliot Noyes for his own house in New Canaan, Conn.; Caudill, Rowlett, Scott & Associates of Bryan, Tex., for their county courthouse and jail in Bryan; Antonin Raymond and L. L. Rado of New York for their St. Anselm's priory in Tokyo; Anshen and Allen of San Francisco for their Chapel of the Holy Cross in Sedona, Ariz.

Awards of Merit were made to Cau-



HIGH SCHOOL, in Greenburgh, N. Y., by Warren H. Ashley, of West Hartford, Conn.

dill, Rowlett, Scott & Assoc; Curtis and Davis; Golemon and Rolfe; A. Quincy Jones and Frederick E. Emmons; George Matsumoto; R. B. O'Connor and W. H. Kilham Jr.; A. G. Odell Jr.; Edward B. Page; Antonin Raymond and L. L. Rado; Skidmore, Owings & Merrill; Stevens and Wilkinson; Paul Thiry; and John Carl Warnecke.

California awards contest a press and TV hit

Said one San Francisco architect commenting on the unusual, widespread professional and public interest aroused by a special centennial year honor awards program of AIA's Northern California, East Bay, Coast Valleys, Central Valley and Monterey Bay chapters: "This is the biggest boon to architecture here since the earthquake." Said another during the four days the nonconventional jury inspected some of the 140 entries in the field as well as from plans and photos: "I've had a stomach-ache for a week now. I can't attribute it to anything else."

At least four unusual aspects of this program helped make it a huge press and public relations success:

► The top award winner was promised a commission for one of San Francisco's next public buildings—probably a firehouse.

► Except for the chairman, the jurors were selected more for their other public accomplishments than for strictly

architectural discernment. M.I.T. architecture Dean Pietro Belluschi served as chairman, and the others were Atomic Scientist J. Robert Oppenheimer; Businessman Edgar Kaufman Jr., board member of New York's Museum of Modern Art; architectural Sculptor Harry Bertoia and Columbia University architecture Professor James M. Fitch.

► One of the practical as well as esthetic criteria for judging each entry was

"its mastery and recognition of our atomic-age technology coupled with firm discipline of spiralling costs."

► After selecting the winners, the jurors appeared on a full-hour TV educational program to discuss their theories of art and architecture.

Highest Honor Award was won by John Lord King, of San Francisco, for his Broadway Shopping Center in Belvedere, Calif. Other top award winners were: Campbell & Wong, Mario Ciampi,

Edward Page, John Carl Warnecke, Ann Knorr and Keith Monroe.

DESIGN

Church speakers hit both Gothic, vulgar modern

Restrained Christian debate over design marked the recent Joint National Conference on Church Architecture in St. Louis, attended by almost 1,000 architects and church building executives.

New York's Dr. C. Harry Atkinson, editor of *Protestant Church Administration and Equipment*, was the first of two keynoters for this annual conference of the Church Architectural Guild of America and the department of church building of the National Council of Churches. He began by protesting: "A church that looks like a gas station or a supermarket with a cross attached is no proper building for worship; nor should a church be so flighty as to resemble a chrome-blazoned night club entrance." But also making it clear that he opposed a return to Gothic, he counseled church designers not to borrow "a cookie cutter from the past." Favoring "new forms and new materials," he urged designers to be "modern and courageous, but never vulgar—let the church be the church, in the world, but not of it."

Boston's Dr. Arland A. Dirlam was co-keynoter and general chairman for the conference. He warned that new churches must "be neither nostalgic reflections of Christmas cards nor comic strip concepts of space dwellings." He emphasized that building committees today should "demand that architects use the resources proved good in the past, alert themselves to the potentials of the future, but build churches of the present." He scored the architect who refuses a church commission unless the building committee gives him carte blanche as to architectural style, and likewise those who would "experiment wantonly at the expense of their clients," often evolve "strange and weird forms that are purely faddish architectural compositions."

Design comments of other speakers: ► "The automobile is second only to the birth rate as a stimulus to church building. . . . But the most disturbing problem for churches is parking space.

continued on p. 12

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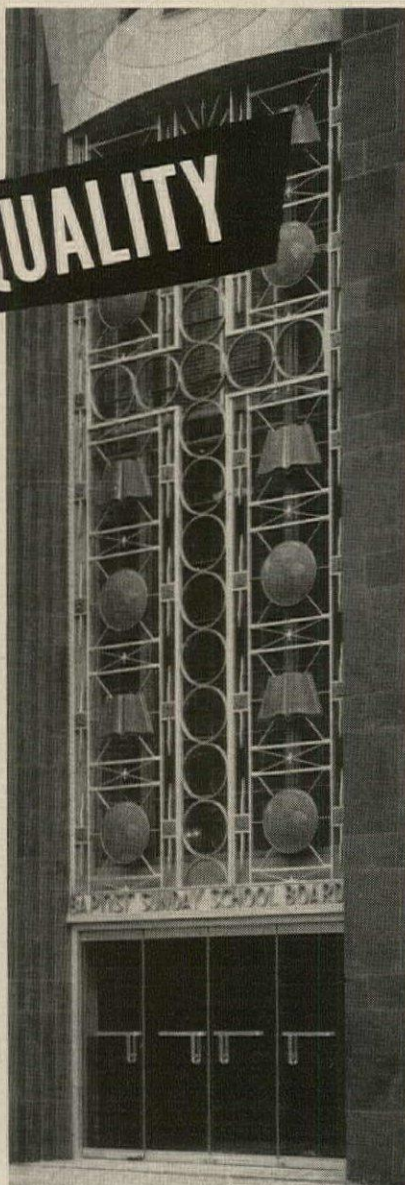
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As one minister puts it: 'Before we pew them, we must park them.' Adequate offstreet parking is a necessity for any church that hopes to grow. . . . The American people also desire more impressive places of worship. They are not content with the auditorium-type churches of the past. They crave a place where they may experience the presence of God. As one architect says: 'It is my ambition to build churches where people will throw away their

cigarettes, take off their hats and cease talking, spontaneously.'"—Dr. John R. Scotford, of New York.

► Some modern churches are "good ads for pickle factories, of 57 varieties, while others look like chicken coops."

—Church Architectural Guild Treasurer Harry E. Warren, of New York.

► "Nonsense," retorted Seattle Architect Robert L. Durham. "Contemporary design solves the needs of today's churches for less money. We are way

behind Europe in dropping the shackles of the past. There modern art is accepted for altars, pulpits and murals."

Despite last year's record \$773 million of church construction, and a record 273 entries in the Church Architectural Guild annual awards contest, the judges were sparing with their honors. They gave no first, second or third prizes, but only honorable mentions in the classes for churches seating more than 300 persons, and for "hypothetical churches"; no first or second prizes in the additions and alterations class. The only first prize awarded, in the under 300 class, went to Durham, Anderson & Freed, of Seattle, for their St. Elizabeth's Episcopal Church, in Burien, Wash.; the only second prize to Lawrence, Saunders & Calongne, of New Orleans, for the Gretna (La.) Methodist Church.

The Guild's 1956 Elbert M. Conover award for the outstanding contribution to better church architecture by a non-architect was given to Dr. William Kincaid Newman, a New York lawyer, since 1937 secretary of the church building department of the Board of Home Missions of the Congregational and Christian Churches, and the author of *Planning Buildings for Christian Education*.

To succeed Edward F. Jansson, of Chicago, the guild elected as president Harold E. Wagoner, of Philadelphia, professor of architectural design for 19 years at Drexel Institute Evening College, staff member of the Methodist Bureau of Architecture, and architect for the Shrine of the Ages chapel (Protestant-Catholic-Jewish) planned for the rim of the Grand Canyon.

COMMUNITY PLANNING

Huge "research park" set 40 mi. out of NYC

In 1952 the City Investing Co., headed by New York Realtor-Developer Robert W. Dowling, optioned a 27 sq. mi. tract of rugged mountain foothill land near Tuxedo Park, N. Y., 40 mi. out of New York City beside the then-projected New York State Thruway.

Planning and studies were begun on the best uses that could be made of the hilly, wooded, lake-studded property and its rich natural resources—during the Revolution iron mines and furnaces on the site forged an historic

continued on p. 16

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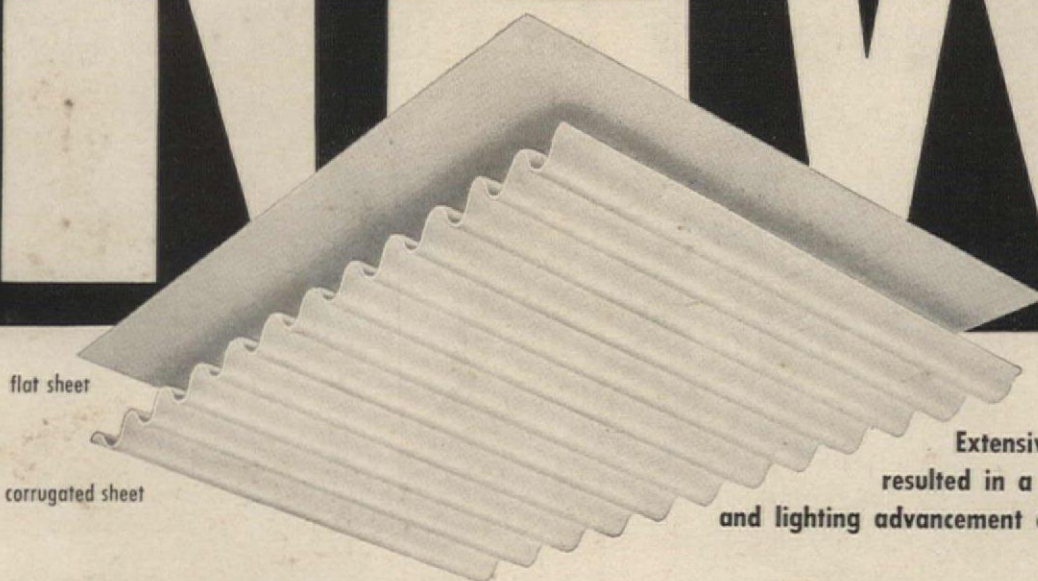
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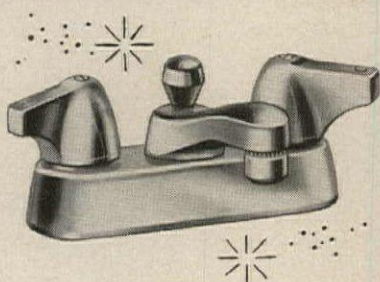
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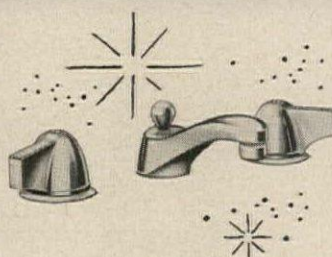
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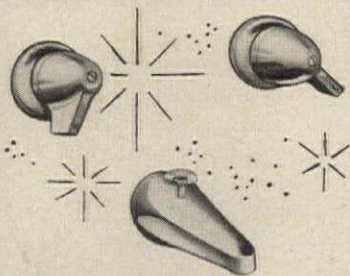
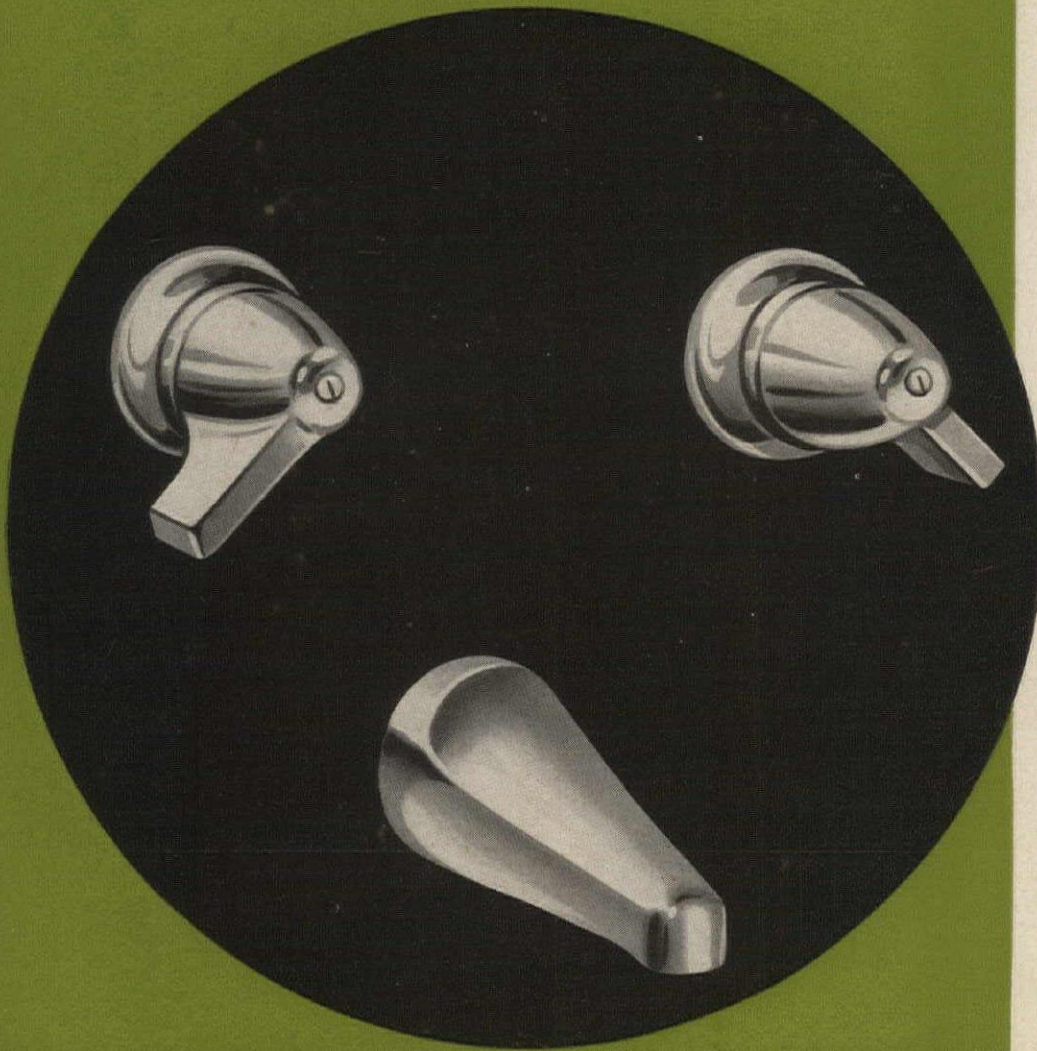
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diverter spout.**



**New Eljer Vari-Spray
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chain that was stretched across the Hudson to keep British ships from moving up the river. These studies confirmed the great potential of the property, and two years ago City Investing took title to it from the Harri-man family—including New York Gov-ernor Averell Harriman.

Last month, Dowling, usually re-garded as the spokesman and apostle of the towering central city, announced the first deal for developing this vast

exurban Sterling Forest tract, and the over-all plan adopted for its total de-velopment. It will be transformed into a modern "giant research park" repre-senting investments of \$100 million or more. The first project: a nuclear research center for Union Carbide & Carbon, including a five-megawatt pool-type atomic reactor, on a site of several hundred acres leased from City Invest-ing Co. for 100 years. In the offing: a second deal with another giant corpo-

ration that contemplates another re-search "campus" around a lake in its own separate "science valley."

Despite Thruway convenience, it has been decided to exclude light industry from Sterling Forest, and restrict it to research laboratories, and housing and community facilities for its scientists and technicians. The nation's big cor-porations have found that they need to locate their headquarters in mid-Man-hattan to be near each other and keep their city-loving employees satisfied. Similarly, says Dowling, they have learned that they need to locate their research facilities within easy reach of headquarters, and they also all gain by locating their facilities near each other. Their scientists, they have found, are something like their stenographers; they are unwilling to move out of reach from all the cultural and other advan-tages of New York, although willing to live and work on its more rustic peri-iphery.

To protect natural attractiveness of Sterling Forest, 45 minutes from Man-hattan by Thruway, all its building will have to be approved by a board of de-sign that will limit all construction to the height of trees, allow none on hill-tops or in locations or in styles that would be inharmonious with the natural landscape. Included on this board are Gilmore Clarke, of Clarke & Rapuano, consulting engineers and landscape ar-chitects, and Dr. John R. Dunning, dean of Columbia University's school of en-gineering.

Without knowing the exact provisions of land leases at Sterling Forest, in-dependent observers felt, nevertheless, that it probably indicated a trend: fed-eral tax law exercising a major influ-ence in procedures to be used in devel-oping some of the large tracts being opened up for development as a result of state thruway and federal highway programs. Subdividing, even into very large pieces, might make the profits from such land improvement projects subject to regular income tax levies, (giving the Treasury windfalls as high as 52% on the increment in land value), rather than less onerous capital gains taxes. Leasehold development seems to offer some tax deferral relief. And, if the investor can leave his improvement-increment profit in the property long enough, he can still sell the fee more advantageously years later, when in-come taxes might be considerably lower. In the interim, of course, he also might get out some of his money by mortgag-ing the leasehold, based on its im-proved, higher value.

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Architects: Ryder & Link, Schenectady, N.Y.
Installed by New York Plate & Window Glass Co.

STRENGTH

- Horizontal mullions *welded* and *reinforced* into place for greater strength.
- Heavy alumilined aluminum sheet glazed into center panel.
- Corners of doors completely welded with heavy machined reinforcements.

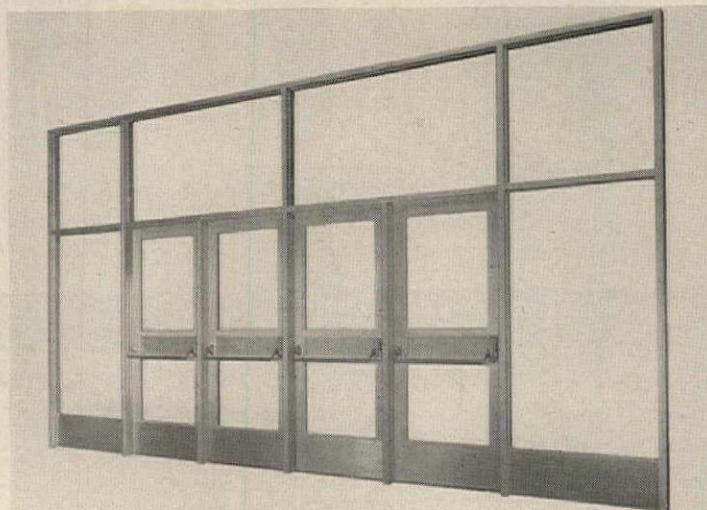
STUDENT SAFETY

- Student safety provided by extra protection of high strength center panel.
- Protects against injury from glass breakage should student's hands slip from panic crash bar.
- Tempered glass can be specified for the bottom glass light (kick area).

ATTRACTIVE DESIGN

- Mullions fabricated of same sections as door rails to present smooth, clean lines across the door.
- Alumiline Center Panel Doors available in nar-row stile and wide stile construction.
- Aluminum sheet in center panel glazed in same plane as upper and lower glass openings to carry glass line throughout.

Interior View of Factory
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showing Alumiline Wide
Stile Center Panel Doors
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Panel details and
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Dept. F, Dunnell Lane, Pawtucket, R. I.



Weldwood teak paneling in President's office, First National Bank of Phoenix, Phoenix, Arizona. Architect: William D. Reed; Installation: Adelta Showcase & Fixture Mfg. Co.

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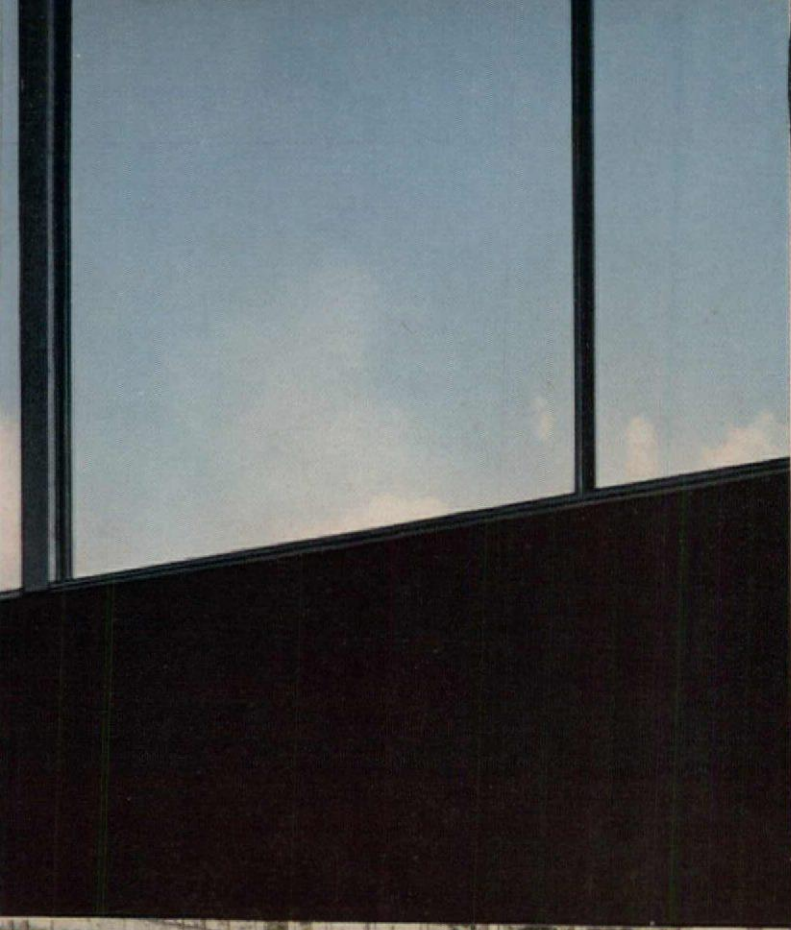
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Architect: Nelson E. Thal, Toledo, Ohio.



Architect: Yount & Sullivan, Dayton, Ohio.



Architect: Gerald H. Bense & Associates, Whittier, California.



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L·O·F *Parallel-O-Plate* is twin-ground (both sides simultaneously) for maximum surface parallelism and freedom from distortion. Yet, in most localities, it costs no more than ordinary plate glass.

More facts are in the column at the right.



Designed by Hillsmith & Co., Dayton, Ohio.

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COMPARE the reflections of the up-side-down signs in the mirror of conventional plate glass (top) and the mirror of *Parallel-O-Plate* (bottom).

Parallel-O-Plate Glass is more distortion free than ordinary plate glass because its surfaces are more parallel. This great degree of parallelism is the result of *twin-grinding*.

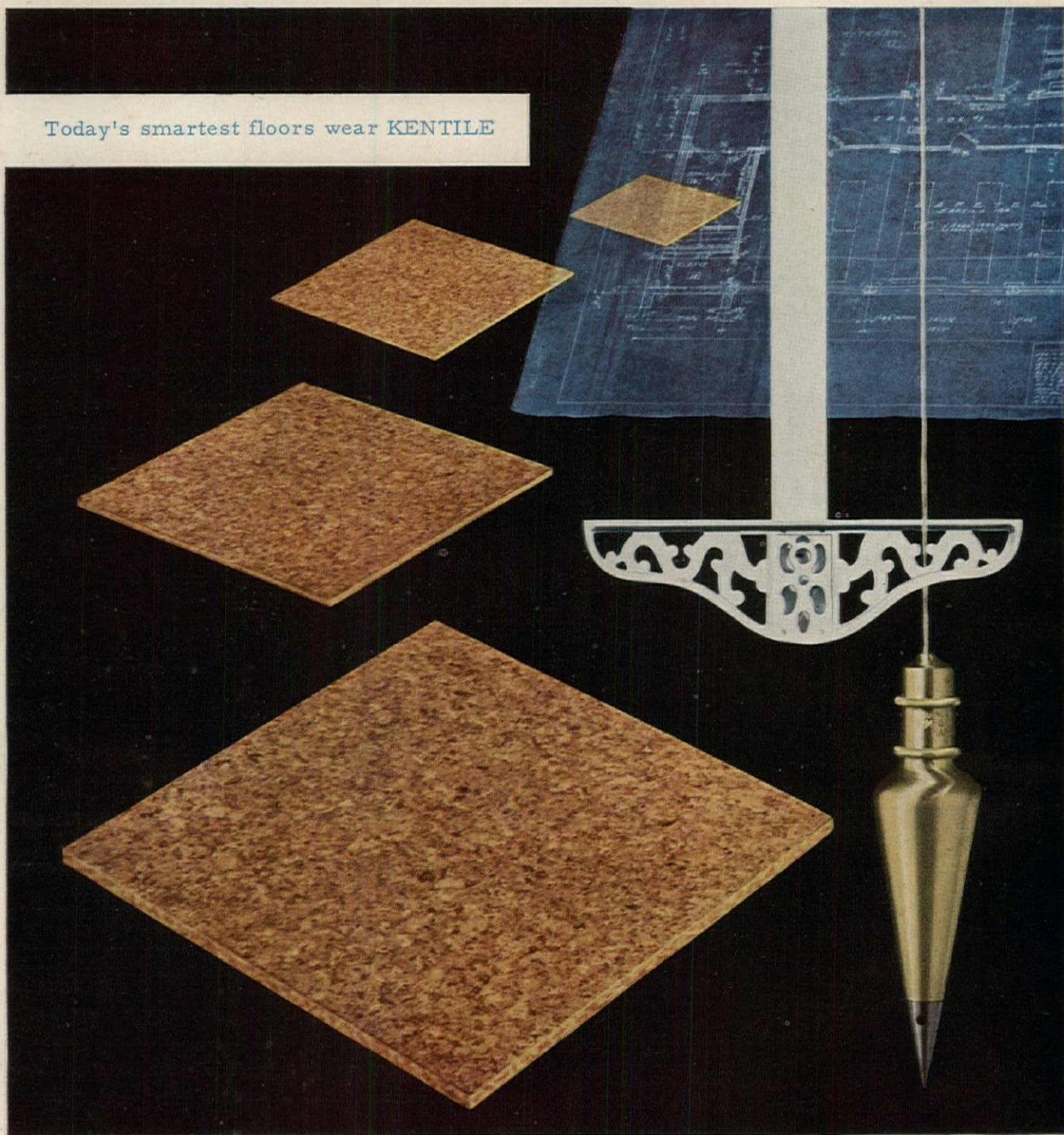
The ordinary method is to cut off a section of glass, grind one side, turn it over and grind the other side.

With *twin-grinding*, the glass moves from the furnace through the annealing lehr and into the *twin-grinding* machine where both sides are ground simultaneously in a continuous ribbon 975 feet long. It's *precision made* all the way.

For further information, call your Libbey·Owens·Ford Distributor or Dealer (listed under "Glass" in the yellow pages). Or write Dept. 4247, Libbey·Owens·Ford Glass Company, 608 Madison Avenue, Toledo 3, Ohio.

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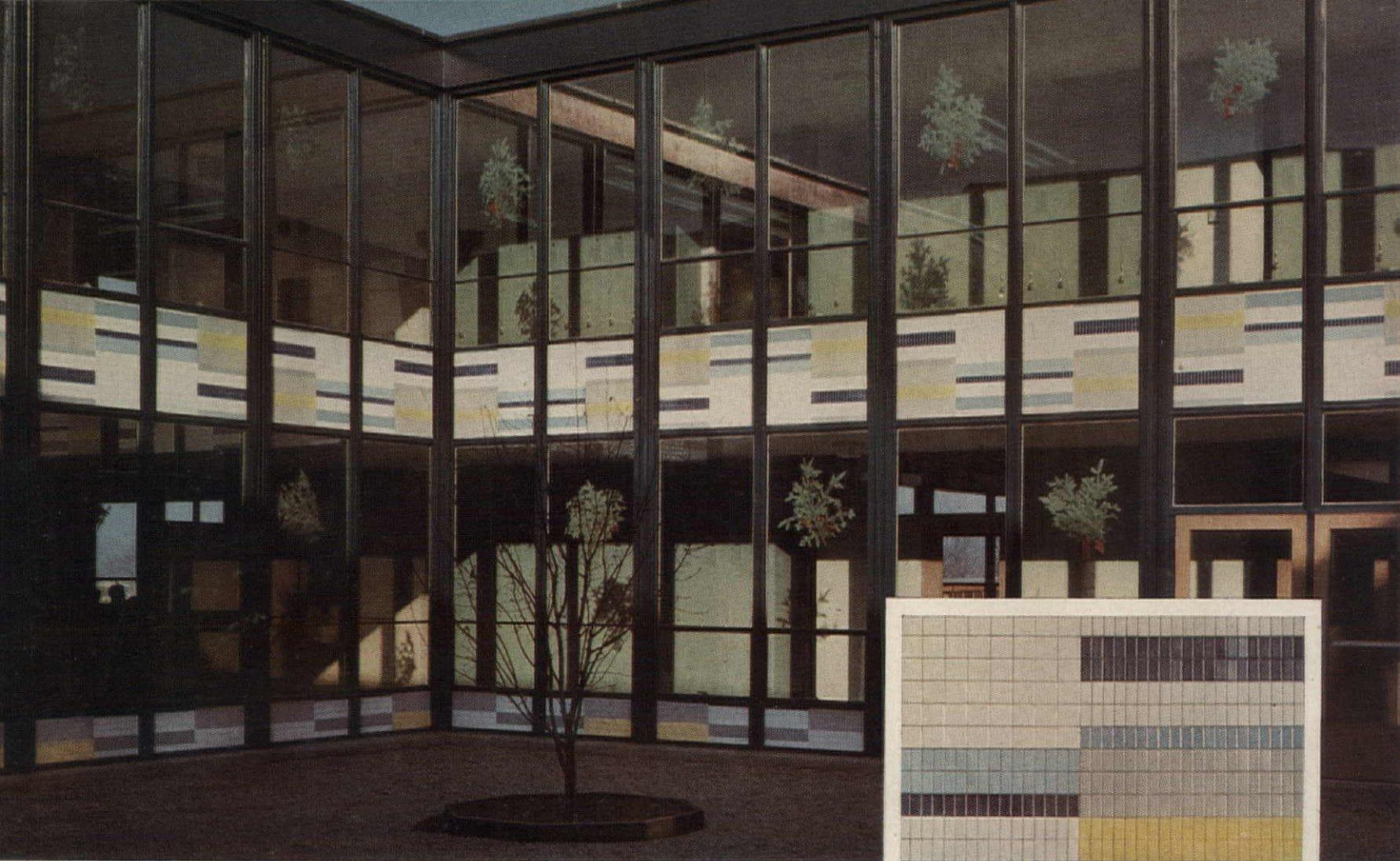
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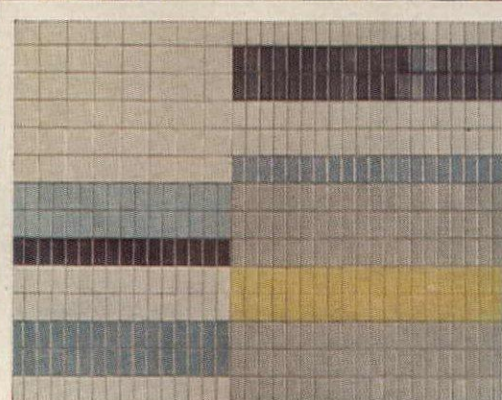
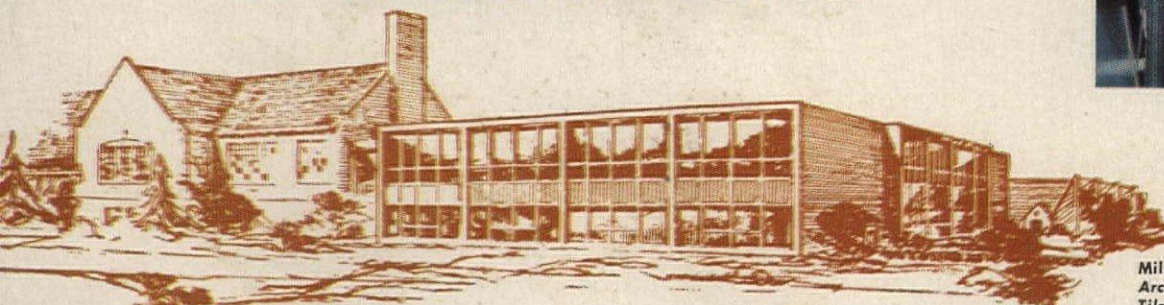
SIZES:
6" x 12", 9" x 9", 12" x 12".
12" x 24" (not available in
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THICKNESSES:
1/8", 3/16", 5/16", 1/2" (on
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COLORS:
Kentile cork tile (KenCork®) is
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factory finish--a specially pre-
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**Exterior panels of
Romany•Spartan ceramic tile
bring new low cost beauty
to Wisconsin school**



Above: Close up of inner court wall panel
Below: Outer court panels of unglazed tile

Here's an outstanding exterior application of ceramic tile. In the recently completed addition to Milwaukee's Country Day High School, the architects achieved this eye-catching design on inner court walls through the skillful use of Romany•Spartan buff body glazed tile in two sizes; seven colors. No less attractive, but entirely different, are the outer court walls, made of unglazed 2" x 2" Romany•Spartan Orsans.

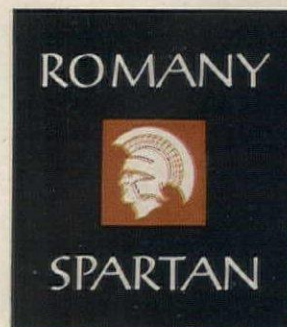
But beauty is only one of the many desirable qualities of Romany•Spartan tile. It's fireproof, impervious to moisture and changes of temperature. It will never

fade or discolor and its self-cleaning characteristic will keep it bright and fresh looking through the years.

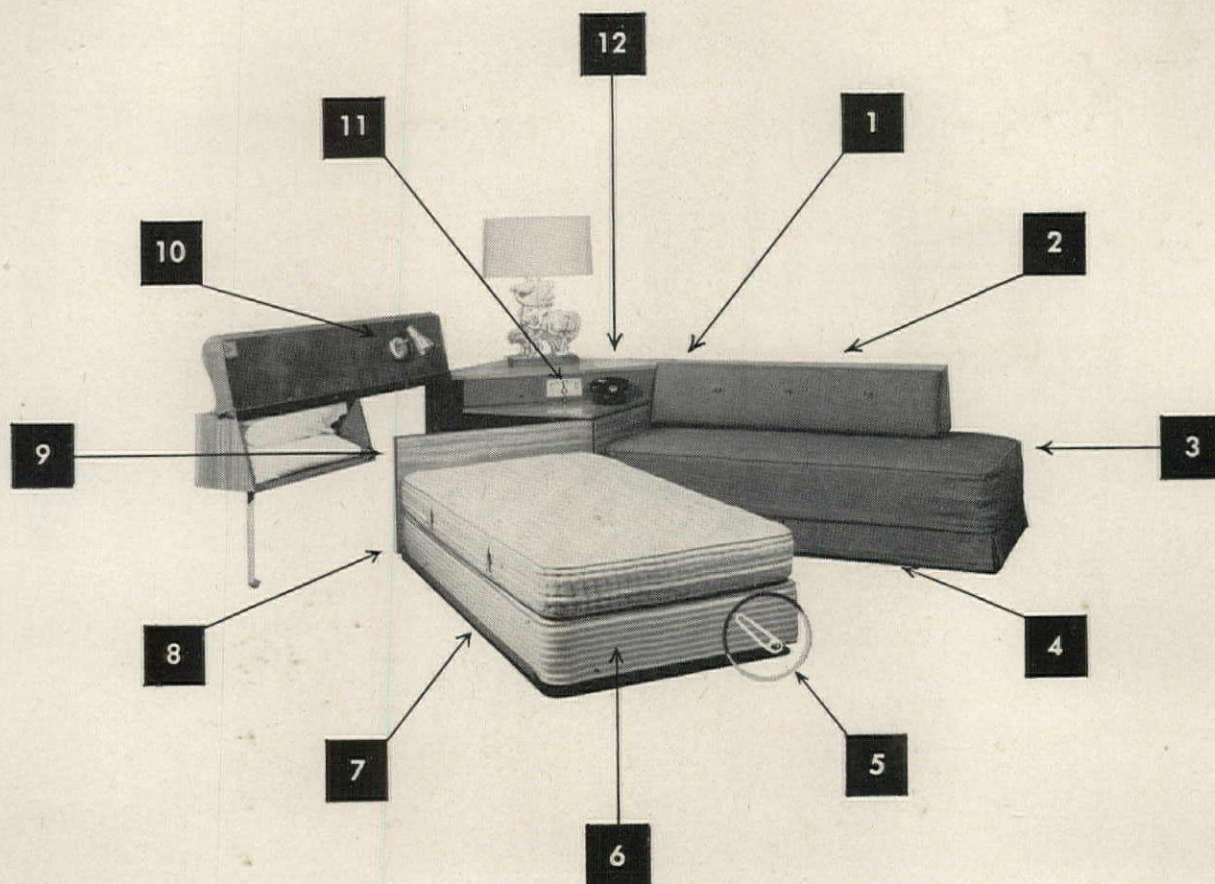
Low initial cost and ease of maintenance make Romany•Spartan ideal for corridors, stairs, cafeterias, washrooms, locker and shower rooms, swimming pools and auditoriums.

Select from Romany•Spartan's complete range of colors, sizes, finishes and textures. If you'd like help in working out your design problems, get in touch with your nearby Romany•Spartan representative or write: United States Ceramic Tile Company, Dept. A-12, Canton 2, Ohio.

Milwaukee Country Day School, Milwaukee, Wis.
Architects: Scott, Kloppenburg & Scott, Milwaukee
Tile Contractor: Durner Company, Milwaukee



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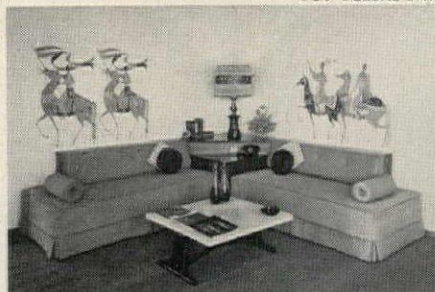
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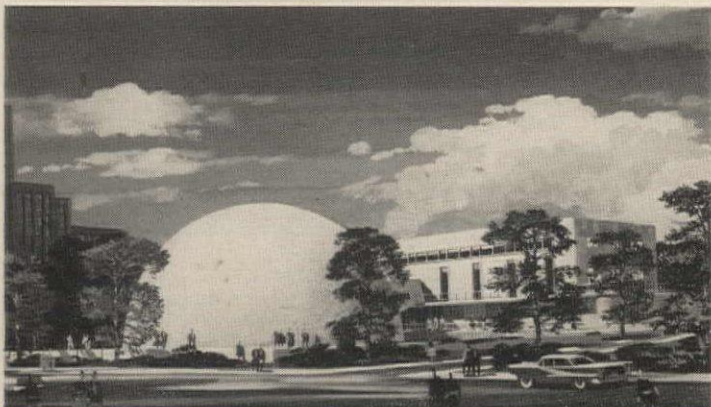


A roundup of recent and significant proposals



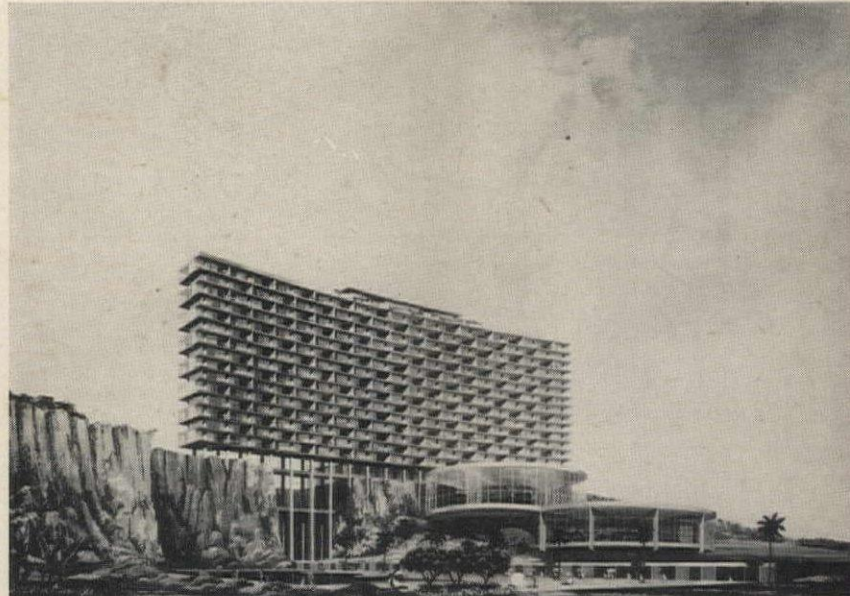
HISTORIC SITE

New York's City and Municipal Courts Building will rise on the site of old "Tombs" and Collect Pond, where John Fitch tried out the first paddle steamboat. The new 12-story building, to cost \$14.5 million, was designed by William Lescaze and Matthew A. Del Gaudio, associated architects.



MEDICAL CENTER

Harrison & Abramovitz are the architects for four new buildings started for the Rockefeller Institute for Medical Research in New York. Two of the four, shown above, are a ceramic tile dome auditorium, Caspary Hall, which will seat 500; and Abby Aldrich Rockefeller Hall (r). Structural designers of Caspary Hall: Praeger-Kavanagh.



CUBAN CLIFF-TOP HOTEL FOR SHERATON CHAIN

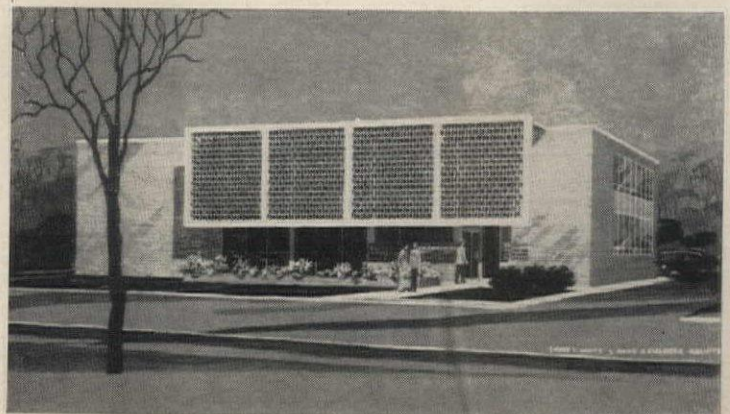
Overlooking the harbor of Trinidad, Cuba, the Cuban Culinary Workers Union plans to erect this \$8 million, 500-room, 15-story and penthouse resort hotel to be operated by the Sheraton organization. Below the main structure, designed by Watson & Deutsch-

man, of Miami, will be two large circular sections housing a restaurant, and a night club and casino; on the ground level, cabanas and swimming pool. The entrance will be on the north side (not shown), which will feature a 15-story high tiled wall.

SOLAR-SCREENED QUARTERS FOR HOUSTON ARCHITECTS

All modern conveniences, including air conditioning and a parking lot for 22 cars, have been planned for this two-story building for their own occupancy designed by Houston, Tex., Architects Emory S. White and Arne G. Engberg. The solar screen projecting 4'

from the west front will be made of reinforced concrete and 12' square panels of horizontal clay tile in the same shade of pink as the rest of the building. Initially the architects will use only the ground floor, lease the upper floor as an extra source of income.





UNIVERSITY OFFICES

Statewide offices of the University of California will be consolidated in this seven-story structure to be started this summer adjoining the Berkeley campus from plans by Welton Becket & Assoc. White columns and blue and beige ceramic panels will cover the exterior of the \$3 million, 150,000 sq. ft. steel and reinforced concrete structure. It will release three other buildings on the Berkeley campus for badly needed classroom use.



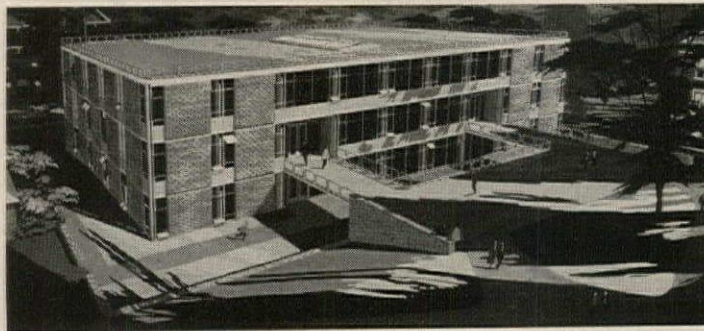
30,000 SKYLIGHTS

T. Y. Lin & Associates, John Lautner, consulting architect, designed this windowless one-story concrete plant for Kaynar Manufacturing Co., Rivera, Calif. Daylight enters through 30,000 prismatic "lightports" in the roof. A year-round heating and cooling system is supplemented by sprays which keep 2" of water circulating over roof.



NEXT YEAR: ROUND HOTEL

On Florida's Gold Coast, where the newest hotel is traditionally the place to stay, 1958 visitors will find the \$14 million Rubaiyat Hotel, which promises a balcony with every room. Its circular shape solves the problem of an odd-shaped lot and still leaves room for parking area, cabana, and two pools. Flat plate construction eliminates floor beams. Architect: Norman Giller & Associates, Miami Beach.



COLOR AT THE CORE, SKYLIGHT ON TOP

A three-story chemical laboratory, complete with apparatus in bright colors visible from glass-walled corridors, will form the center of the new engineering laboratory at

Washington University, St. Louis. The engineering department building was designed by Fitch & Nicholas of St. Louis, with Joseph Passonneau as consulting architect.



JACOBY'S PHOTO SERVICE

OKLAHOMA CITY TOWER

Architects Sorey, Hill & Sorey designed this 17-story, \$4.4 million office tower for downtown Oklahoma City, scheduled for completion in August. Exterior walls will be aluminum, porcelain enamel.



LOWER NEW YORK OFFICES

The New York State Workmen's Compensation Board will have its own lobby and elevators for a 218,000 sq. ft. section of this \$28 million lower Manhattan office building being erected by Erwin S. Wolfson; plans by Emery Roth & Sons.

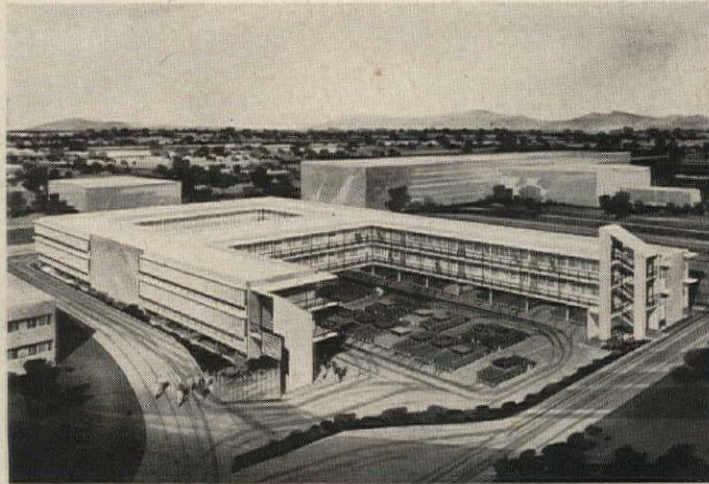
HIGH LIFT-SLAB OFFICES

Architect Kenneth N. Lind designed this Pasadena, Calif., office building for the Dalton Corp. as a ten-story lift-slab structure, is now revising it to rise 12 stories. Main entrance will be from the rear, where a separate four-story garage will park 232 cars.



EXPANDING TV FOOTAGE

The new Warner Bros. building (r) planned for Burbank, Calif., is the forerunner of a major building program to provide space for television activities. Offices, film editing and projection rooms will be built on steel piers over a parking area. Architects: Hutchison, Kinsey and Boeke of North Hollywood; Bertram Tuttle, consulting architect.



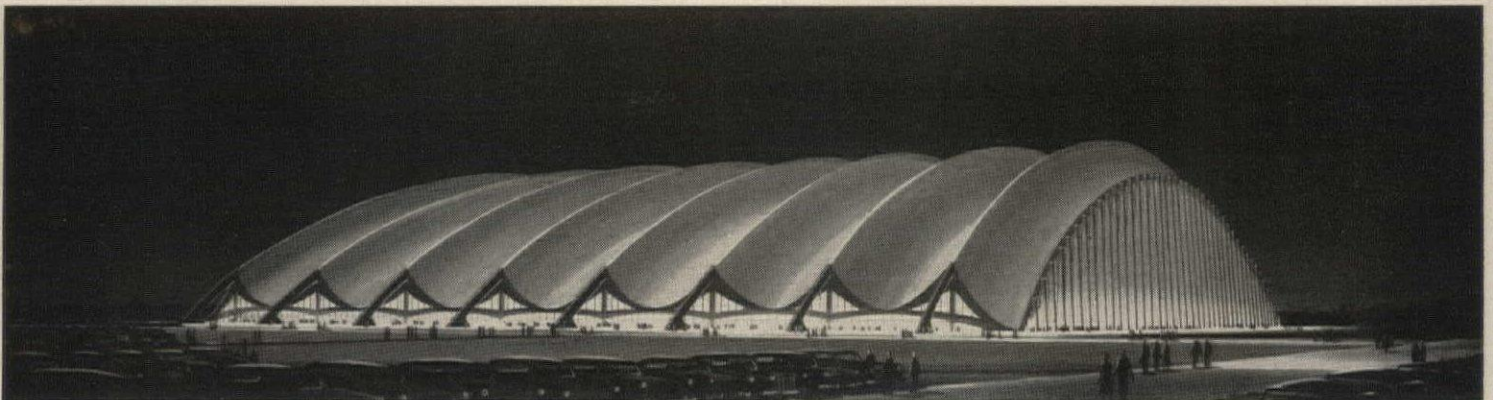
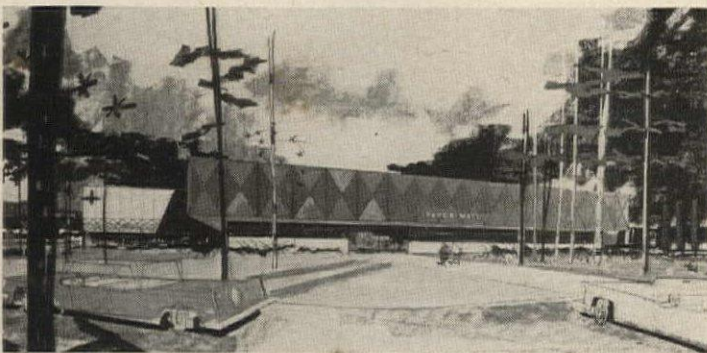
GOLD-ALUMINUM TOWER

Gold-anodized aluminum in two different shades will sheath this 34-story New York tower being erected by Sam Minskoff & Sons in their 50th anniversary year from plans by Sylvan Bien and his son Robert. Spandrels will have a matte finish, mullions a lighter golden shade reflective finish.



DIAMONDS AND TRIANGLES

Big diamond-shaped porcelain panels form the facade of the Paper Mate Manufacturing Co. plant in Santa Monica, to be finished this month. The new factory and office building, designed by Richard L. Dorman & Associates, is of reinforced concrete tilt-up construction.



ALUMINUM-ROOF ARENA THAT WOULD COVER 35 ACRES

Harness racing pays big profits, big taxes. In New York investors sought special state-city tax division legislation to permit construction of this vast aluminum arena for all-year

racing. Clear-span structure by Frank Grad & Sons, Urbahn, Brayton & Barrows, would be world's largest. It was fitted into an Albany pigeonhole for at least a year, however.

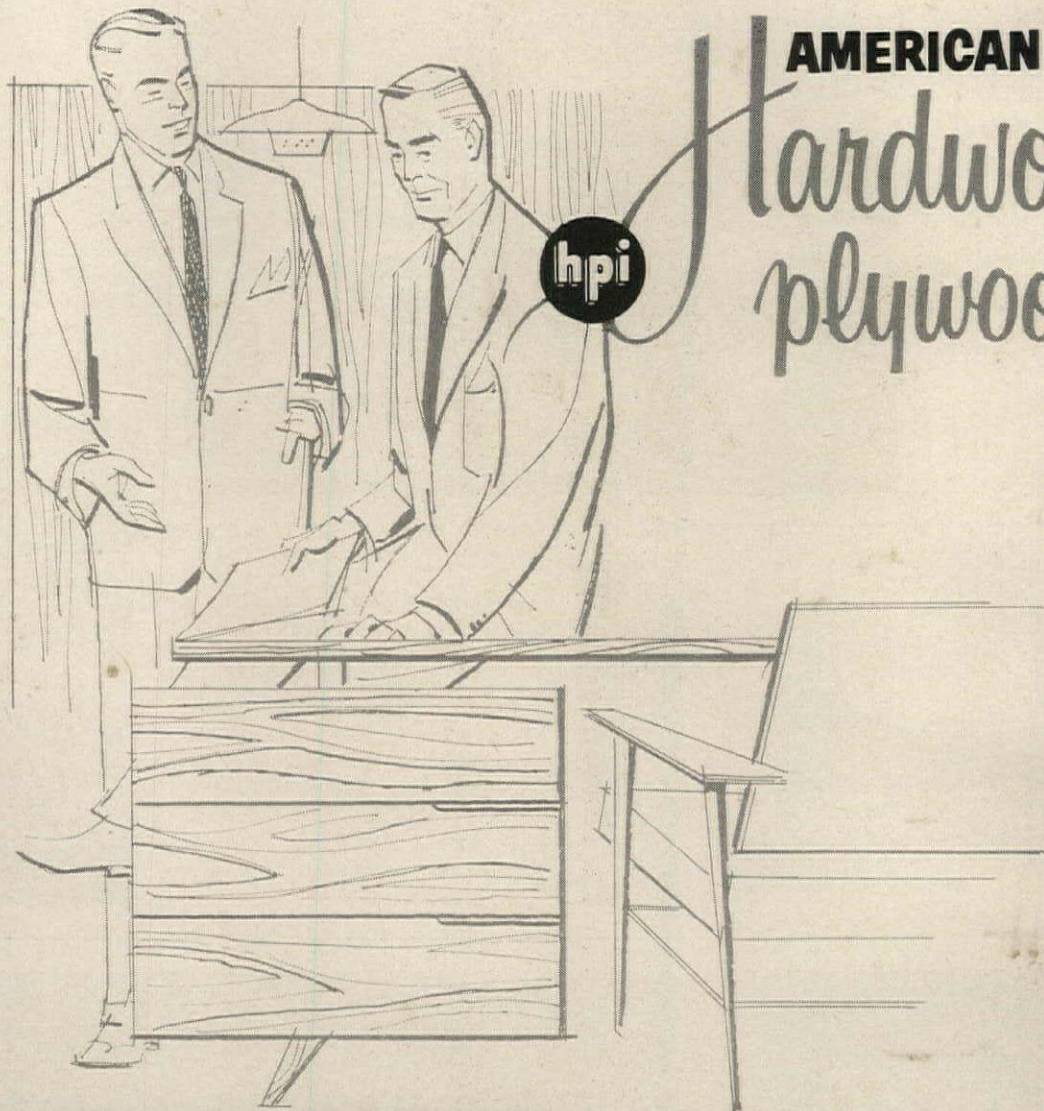
STRATIFIED RANCHES

Success in selling more than half the apartments in "Phoenix Towers" before ground was broken prompted its sponsors to launch a plan for similar "vertical ranch home" co-ops in 20 cities. Architect: Ralph C. Harris, Chicago.

BUFFALO SKYSCRAPER

The first new tower to rise in downtown Buffalo in a generation has been announced by Tishman Realty & Construction Co., Inc. Designed by Emery Roth & Sons, the 20-story building will be sheathed in glass.





AMERICAN MADE

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plywood... *the*



in homes . . .

"Hardwood Plywood is surely a very modern material, but it is also a precious natural material with all the charms of organic law and accident. The sense appeal of a great variety of wood grains can be a wonderful enrichment to many interiors."

RICHARD J. NEUTRA, *distinguished architect*

Richard J. Neutra

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"Because of its inherent qualities of natural beauty, dimensional dependability, relatively low cost and exceptional strength, Hardwood Plywood is ideal for scores of creative applications. The knowledge that it can be formed, bent, shaped, and accurately cut provides constant inspiration for new designs."

EDWARD J. WORMLEY, *brilliant designer*



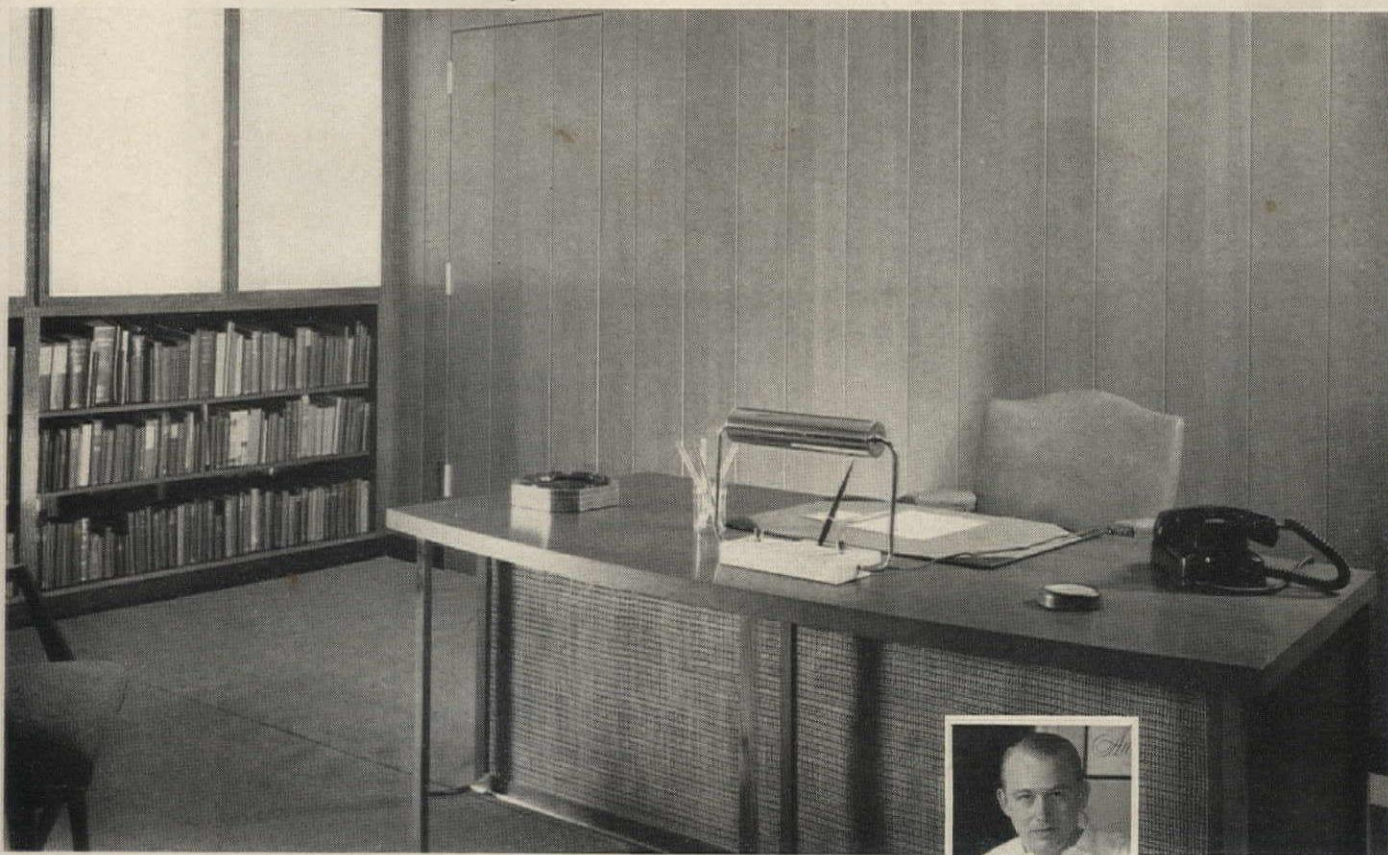
Edward J. Wormley

+ +

distinctive touch of elegance

+ +

in good design



better offices for better business with friendly wood

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Ken White



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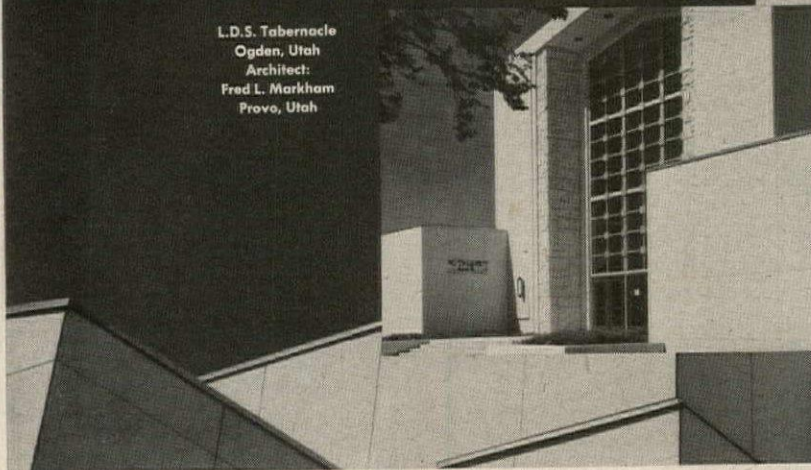
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Mo-Sai

Mo-Sai precast facing again proves its design versatility in this church building. There's a contemporary simplicity about it, yet the motifs in the intricate grille work and bas reliefs around the architrave were inspired by designs found in ancient Mayan cities. Mo-Sai facing was anchored to concrete masonry.

Mo-Sai can be obtained in a virtually unlimited variety of sizes and shapes, colors and textures. At the same time, it offers enduring beauty, speed of erection, strength with comparatively lightweight, and economical high-quality.

L.D.S. Tabernacle
Ogden, Utah
Architect:
Fred L. Markham
Provo, Utah



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CANADA

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Mo-Sai
Pre-Cast Facing



New building outlays running 3% ahead of 1956; Ford funds spur hospital construction

Thanks to a \$159 million, or 11% increase in spending on public projects, total construction outlays for the first two months of 1957 showed a 3% gain over comparable 1956 spending. Mainly because of a \$155 million, or 8% drop in outlays for new nonfarm housing, private expenditures in this period rose only a scant \$7 million, or less than one-quarter of 1%.

As the year got off to a generally promising start, private nonresidential construction registered a \$117 million, or 9% gain for the first two months, according to these Commerce and Labor estimates. Private industrial construction was running 19% ahead of 1956 spending. Office building and warehouse construction were up 15%, but a continued lag in store, restaurant and garage building, down 19%, caused a 5% decline in total outlays for commercial type structures.

Both private and public outlays for

hospital and institutional buildings were showing healthy increases over 1956 spending. US Assistant Surgeon General Dr. John W. Cronin has estimated that hospital spending this year will reach an estimated \$755 million, compared with about \$640 million last year. Major stimulation in this field has been coming from the Ford Foundation, which a little more than a year ago announced that it was donating \$200 million to 3,300 private hospitals to spend any way they pleased to extend and improve community hospital service. Last month, as it disbursed the final \$98 million of these grants, the foundation said recipients were reporting that they are spending more than half of these funds for new construction, and the next largest shares for modernization and new equipment.

In a customary seasonal decline, February construction outlays were 6% less than January expenditures. At the same time, however, BLS reported an estimated 0.6% increase in contract construction employment in February. It reported 2,741,000 workers were employed in this field in February, an 18,000 advance over January. In contrast to the 3% increase in dollar outlays for new construction in January and February, compared with 1956, BLS estimated 5% more workers were employed in contract construction this January (up 135,000), and 6% more in February (up 153,000), than during the same months a year ago.

SPENDING BY BUILDING TYPES

(millions of dollars)

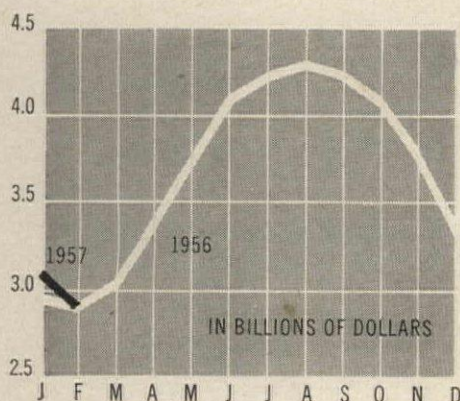
(millions of dollars)

		First two months		%±
	Feb.'57	1957	1956	
PRIVATE BUILDING				
Residential (nonfarm)...	934	1,951	2,078	— 6
Nonresidential	696	1,415	1,298	+ 9
Industrial	264	532	448	+19
Commercial	234	478	503	— 5
Offices; lofts;				
warehouses	116	237	206	+15
Stores; restau-				
rants; garages ...	118	241	297	—19
Religious	65	133	113	+13
Educational	41	84	81	+ 4
Hospital; institutions.	34	67	51	+31
Public utilities	346	696	675	+ 3
*PRIVATE TOTAL.....	2,083	4,271	4,264	**

PUBLIC BUILDING				
Residential	29	57	41	+39
Nonresidential	304	635	577	+10
Industrial	35	75	69	+ 9
Educational	194	405	377	+ 7
Hospital; institutions.	22	45	39	+15
Military	86	119	169	+ 6
Highways	205	425	415	+ 2
Sewer; water	93	193	159	+21
*PUBLIC TOTAL.....	800	1,663	1,504	+11
*GRAND TOTAL	2,883	5,934	5,768	+ 3

* Minor components not shown, so total exceeds sum of parts.

** Less than 1%.



TOTAL EXPENDITURES for new construction in February were almost \$2.9 billion, according to Commerce and Labor estimates. For the first two months of the year, total outlays were 3% above comparable 1956 spending, and on a seasonally adjusted basis were at an annual rate of \$44.7 billion, compared with \$44.3 billion of actual spending in 1956.

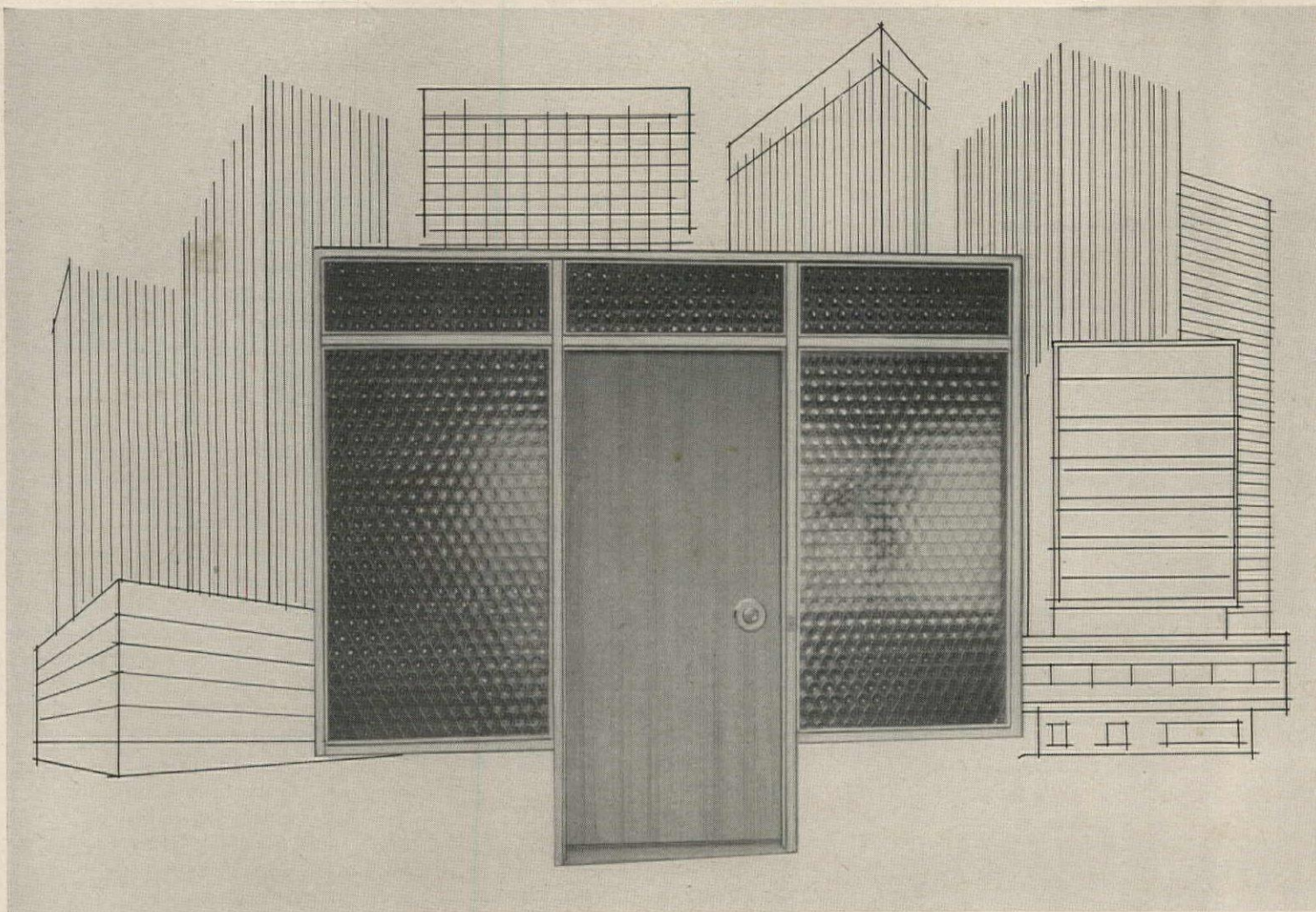
Business to raise outlays for plant and equipment

Reassuring news for construction was contained in the latest survey of plant and equipment expansion plans of US business by SEC and Commerce.

Based on data given to the government in January and February, 1957 capital improvement programs will total about \$37.3 billion, or 6.5% higher than last year's record \$35 billion. (Manufacturers of construction ma-

continued on p. 47

First new decorative patterns in years!



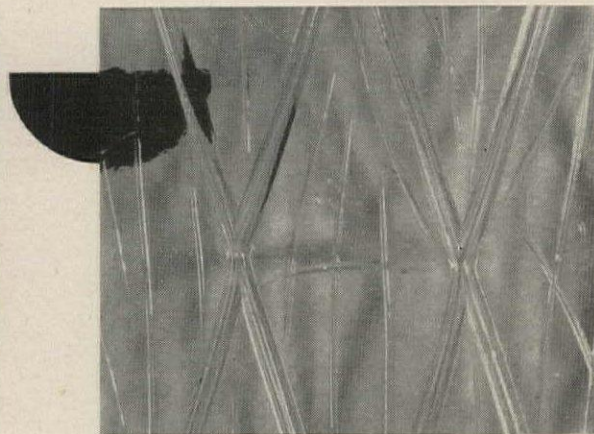
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terials are planning reduced expansion outlays this year.)

Comparing this year's prospective 6.5% increase with the fat 22% upsurge that occurred last year, some observers felt the expansion boom was "leveling off." Others pointed out that the lesser rate of increase now anticipated this year could be attributed in part to "tight money," and cited the fact that financing difficulty has already caused the cancellation or postponement of many proposed industrial and commercial buildings.

General Electric is one company that has temporarily shelved several large construction projects, but as explained by President Ralph Cordiner this will merely "stretch out" rather than diminish its total \$500 million 1956-1958 three-year program. Stressing the greater need for profit consciousness in the face of increasingly stiffer competition, Cordiner described a new formula GE adopted in December to determine which new plants can be built as scheduled, and which held in abeyance. Except in special situations, this formula gives the green light to a new project only if it shows prospects of earning 7% net profit on sales, or a 20% return on its over-all cost.

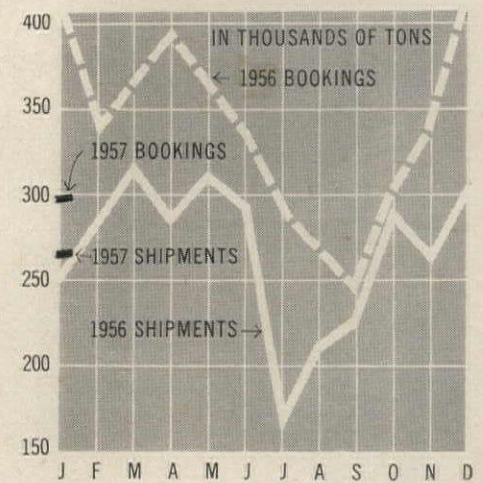
showed considerable increases over the year, offset by marked decreases for others, including the following:

(1947-'49-100)	Feb. '57	Feb. '56	% change
Structural shapes	183.4	157.5	+16.4
Asphalt roofing	115.3	99.6	+15.8
Lumber	121.8	128.2	- 5.0
Plywood	96.4	107.5	-10.3
Heating equipment	122.9	117.1	+ 5.0
Metal doors, sash	138.1	146.3	- 5.6
Plate glass	145.7	137.5	+ 6.0
Window glass	145.9	138.8	+ 5.1
Gypsum products	127.1	127.1	—
Structural clay prod. ...	150.7	145.6	+ 3.5
Concrete ingredients ...	134.8	129.9	+ 3.8
Prepared paint	124.1	119.1	+ 4.2

A slight pickup occurred last month in lumber demand and prices. But discouraged Douglas fir mills in the northwest experienced a 13.7% drop in orders in January and February, compared with 1956, and reduced their production in this period by 9%.

New orders for structural steel in January were 27% below the all-time January, 1956 record, but 23% above Jan., '55, orders. January's bookings were also 35,452 tons greater than

the same month's shipments (see chart), and pushed the industry's backlog of unfilled orders to a new peak of 3,475,000 tons, or 270,000 tons more than last year's record full-year shipments of 3,205,000 tons.



STRUCTURAL STEEL orders in January totaled 297,629 tons, or 27% below the all-time record of 405,396 tons set in January '56, according to the Institute of Steel Construction. January shipments were 262,177 tons.

BUILDING MONEY

Reserve Board unsure whether expansion-inflation peak is past; interest rate uptrend eases

Was the worst of the tight money pinch over, and the fight won against further inflationary increases in interest rates and other costs?

Last month Chairman William McChesney Martin confessed that even the Federal Reserve Board was not certain whether the US economy was heading up or down. Since the beginning of the year, he explained, the board has been following a "passive" monetary control policy, because it "really" does not know which way most business currents are flowing. It will not make its controls either "easier" or "tighter," he added, until the board has discovered whether dominant pressures are inflationary or deflationary. The board's index of industrial production hit a peak of 147 in December, in both January and February registered 146.

Martin recalled that the country experienced a "capital expenditures boom that outran available savings last fall" (p. 45). "You see a little bit of slowing up today, which I think is desirable by and large," he added—although he also stressed that he was not specifically "advocating" a slowdown.

Scoring economists who would accept a "creeping" inflation of 2% or 3% a year as the price of full employment, the Fed chairman said such inflation would eventually cause "disaster." Conceding that monetary controls are harder on some sectors of the economy than others, he observed: "Controls are of no use unless they do bite at some point. There are 4,250,000 small businesses. Obviously more small firms will be affected than large businesses. And the housing industry has been subsidized for quite a while, has been sheltered in some respects. There is a disadvantage in the 4½% interest rate on VA mortgages, but this wasn't brought about by the Federal Reserve—it was brought about by market forces. Congress could adjust credit conditions to help small business, or housing, or automobiles, but if it does so, somebody else will have to be hurt."

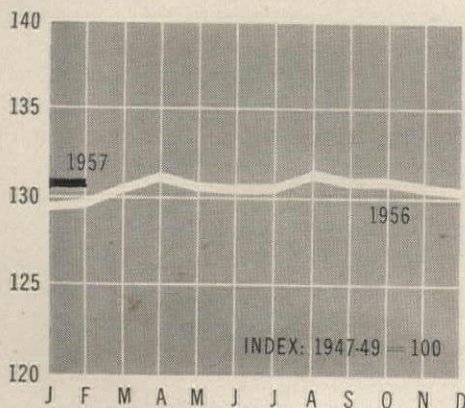
Since the start of the year there has been a slight increase in prices, or a downtrend in yield or interest rates, for most long-term financing paper—Treasury bonds, state and local issues, and both new and existing corporate

BUILDING MATERIALS

Wholesale prices steady 3d successive month

For the third successive month, the BLS index of average wholesale prices for building materials stood unchanged at 130.5 in February, only 0.7% above Feb., '56.

But within the index, some products



BUILDING MATERIALS PRICES showed no change from January to February on the BLS index of average wholesale prices, holding firm at the figure of 130.5, the same as in December and January (revised from 130.7).

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bonds. As borrowing demands showed signs of declining, leading New York bankers last month were no longer anticipating further interest rate hikes.

Banks themselves have not been immune from high interest charges to finance new buildings during the current tight money squeeze. The mighty Chase Manhattan will finance \$60 million of the \$100-million-plus cost of its spectacular new 60-story Wall St. area tower (p. 110) with a 30-year loan from the New York State Teachers Retirement System. Rate: 4%.

COSTS

Store site "gift" proposed to beat building costs

Construction cost problems spawned two offbeat building industry stories last month:

► In New York, shopping center specialist Nelson E. Finch, president of the Harry Thoens Corp., said branch department store construction costs have gone so high that shopping center sponsors might do better to donate the land for such a store rather than try to erect a building for it on a lease. Said Finch: "With the cost of one of these branches—it runs \$20 to \$25 a sq. ft. for the type of building they demand—it is virtually impossible to obtain a big enough rental to come out even. However, if the sponsor can get them to come in by deeding over a site on which they will erect their own building, he can get enough rental from satellite stores to do very well."

► The New York Building Congress sent members a report recommending that owners, architects and engineers: 1) cut to a minimum the number of "alternate estimates" they request from contract bidders, and 2) restrict "alternate estimates" to establishing costs of major materials or products, and do not involve "major design changes." The report recognized that some alternate estimates are necessary, but condemned "certain abuses and practices that continue to grow." Just to calculate excessive alternates, it explained, raises costs in every contractor's and subcontractor's office, and "When such practices become widespread, they needlessly increase general construction costs. There can be no escape from this because they become overhead costs that at some point must be passed on to the buyer."

TRENDS continued on p. 50



90,000 square feet of "natural" fire insurance covers these Beverly, Ohio, schools*

INCOMBUSTIBLE — Gypsum is the *natural* firefighter ... because it's the rock with a "locked-in", fire-fighting water supply. Gold Bond FIREFIGHTER Roof Deck, poured over Gypsum Formboard such as used on this school job, is usually rated as incombustible *because gypsum won't burn.*

FAST INSTALLATION — Up to 30,000 square feet of Gold Bond FIREFIGHTER Roof Deck can be poured in a single day! Under normal conditions, its quick setting action means that 30 minutes after it's poured the roofer can follow with the built-up roofing, using the poured roof deck *safely* for construction traffic.

Note the construction stages in the picture above. At right, the steel sub-purlins are ready for Gypsum Formboard. At center, the FIREFIGHTER Roof Deck

has been poured. At left, the felt and asphalt have been applied and gravel is being spread.

LOW COST — The original building cost is lower—because construction is faster *and* because FIREFIGHTER's low dead loads permits lighter structural supports. Maintenance expense is kept low because gypsum is chemically inert and will not rot, burn or decay. Poured gypsum decks are permanent, yet alterations are easy. Gypsum can be cut, nailed or patched economically.

To see how Gold Bond® FIREFIGHTER® Roof Deck will fit into your plans for pitched, barreled or flat roof designs, write National Gypsum Company, Dept. AF-47, Buffalo 2, New York.

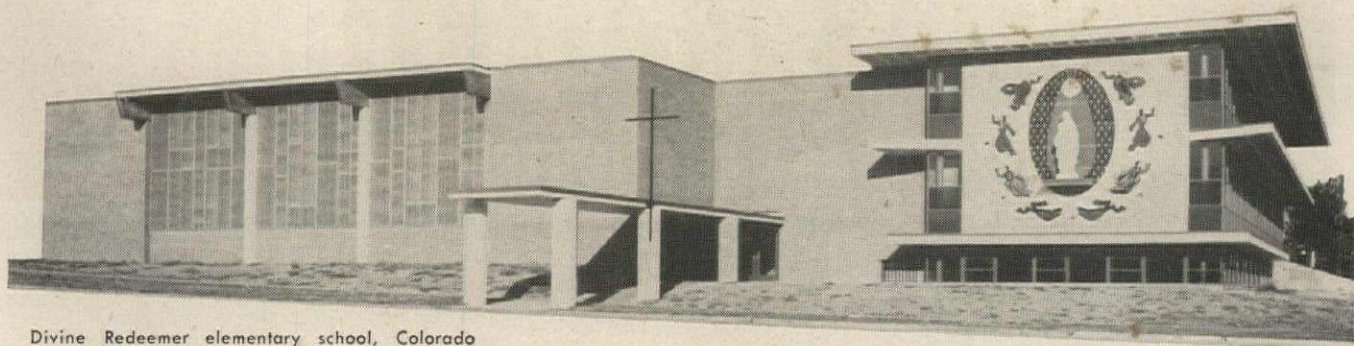
*Beverly Elementary and Fort Frye High Schools, Beverly, Ohio; Architect: McLaughlin and Keil, Lima, Ohio, Contractor: Knowlton Construction Co., Bellefontaine, Ohio; Roof Deck Contractor: Gypsum Constructors of Ohio, Inc., Cincinnati, Ohio.

"FIREFIGHTER" GYPSUM ROOF DECK

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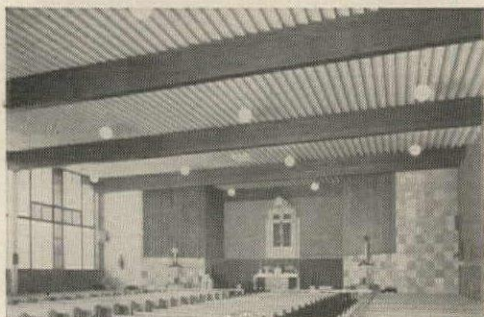
WHICH IS THE ADDITION?



Divine Redeemer elementary school, Colorado Springs, Colorado

Architects: Toll and Milan, Denver

Contractor: Long Construction Company, Denver



The two portions of this structure are basically different in construction. In the chapel (addition) Rilco wood laminated beams helped the architect to add warmth and beauty to the interior at the same time conforming in line with the previously built school. Yet the chapel maintained its own identity.

The architect stated, "Shape was dictated by the need for harmony of the existing classroom (right). Laminated beams allowed a quickly erected and inexpensive structural system that serves as its own decoration."

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Entrance door, left, has Rixson no. 20 concealed floor type closer. Communicating office door, right, is equipped with a Rixson Uni-check concealed floor type closer. Inactive wardrobe doors, center, have no closers; but are hung on Rixson no. 117 offset pivot sets. All doors have identical hanging style, achieving a pleasing simplicity.

No exposed mechanisms or unsightly arms mar the appearance of these beautiful modern doorways, even when doors are open. Extra-length spindles are provided to clear thick rug installations.

Matched hanging styles can also be achieved with Rixson center hung installations.

write for condensed catalog 18e

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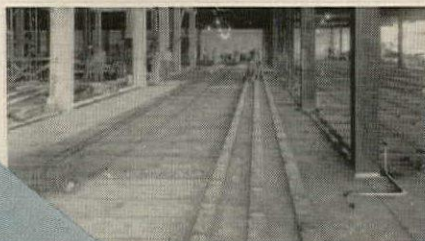
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In the Office Building illustrated here, the Architects have combined Brick, Limestone and Aluminum in the exterior design to achieve the desired effect. The Aluminum Curtain Wall in the Spandrel and Window Panel Areas is made up of Mahon Prefabricated, Fluted Wall. Exterior Surface of the Aluminum Panel is Embossed in Leather-Grain Finish.

Modern Office Building for The Kansas City Southern Ry. Co., Shreveport, Louisiana.
Neild-Somdal Associates, Architects. Southern Builders, Inc., General Contractors.

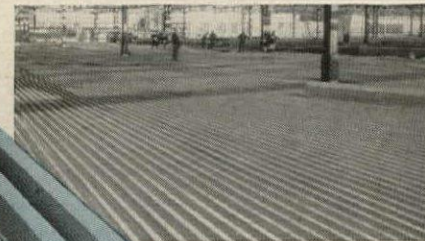


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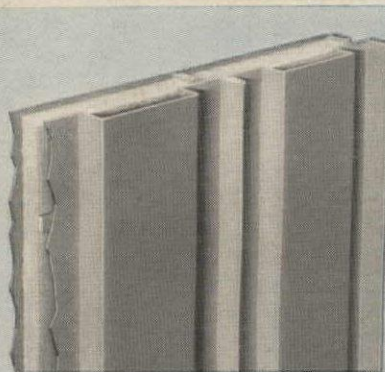


CONCRETE FLOOR FORMS

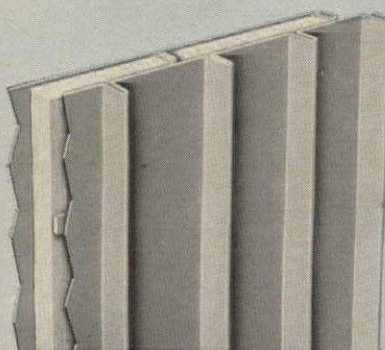
Mahon Permanent Concrete Floor Forms in various types meet virtually any requirement in concrete floor slab construction over structural steel framing.

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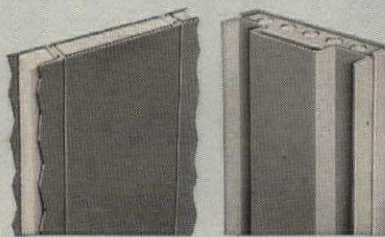
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MAHON RIBBED WALL
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FLUSH FLUTED
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Mahon Insulated Metal Curtain Walls are light weight, permanent construction . . . thermal properties are superior to those of a conventional masonry wall with furred lath and plaster. Erection is fast under any temperature condition. They are economical, too . . . savings amount to as much as 50% of the cost of masonry walls in some types of buildings.

Mahon Field Constructed Walls and Prefabricated Wall Panels are available in Aluminum, Stainless Steel, or Enamel Coated Cold Rolled Steel in patterns shown at left. In the "Fluted Wall" and the "Ribbed Wall", vertical joints are invisible—symmetry of pattern is uninterrupted across the wall surface . . . and, both of these walls can be erected up to sixty feet in height without a horizontal joint. These two design features, which are vitally important from an appearance standpoint, were engineered into Mahon Insulated Metal Curtain Walls to give you a finer appearing job free from unsightly joints.

You'll want to investigate these Mahon "better look" features before you select a Metal Curtain Wall for your next building.

See Sweet's Files for information, or write for Catalogue W-57.

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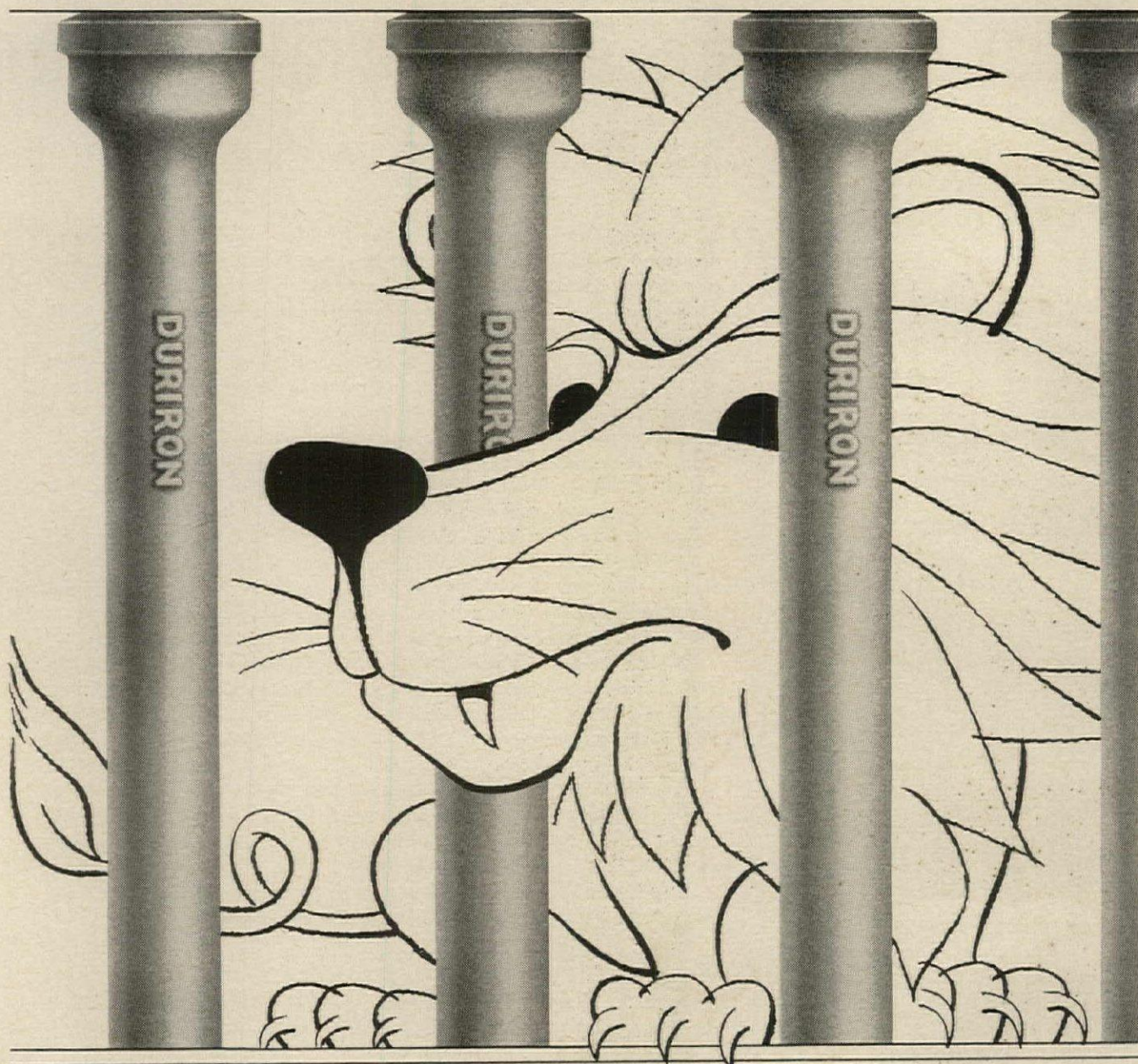
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Standard Manually, Mechanically or Power Operated Rolling Steel Doors and Grilles. Underwriters' Labeled Automatic Closing Rolling Steel Fire Doors and Fire Shutters.



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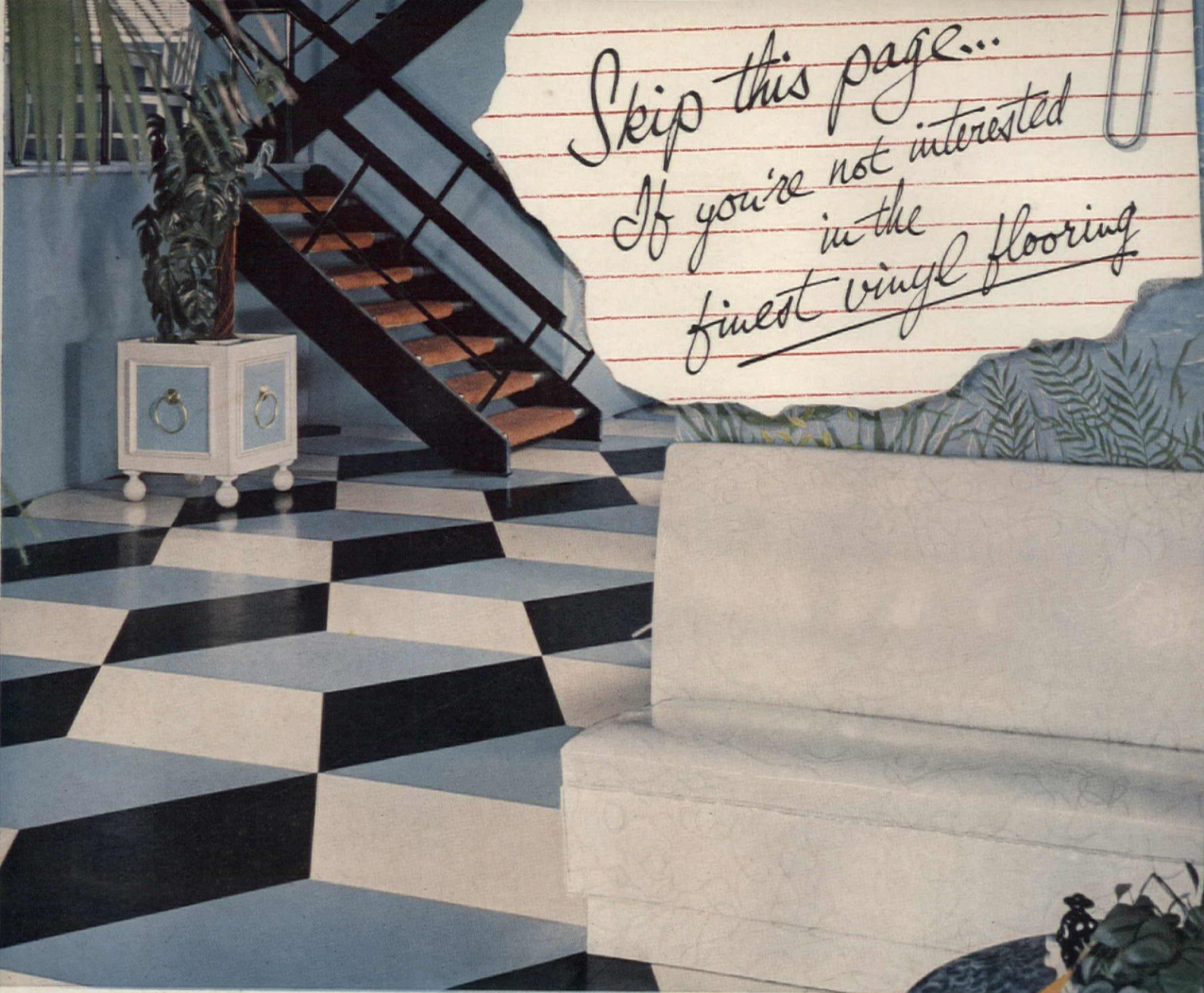
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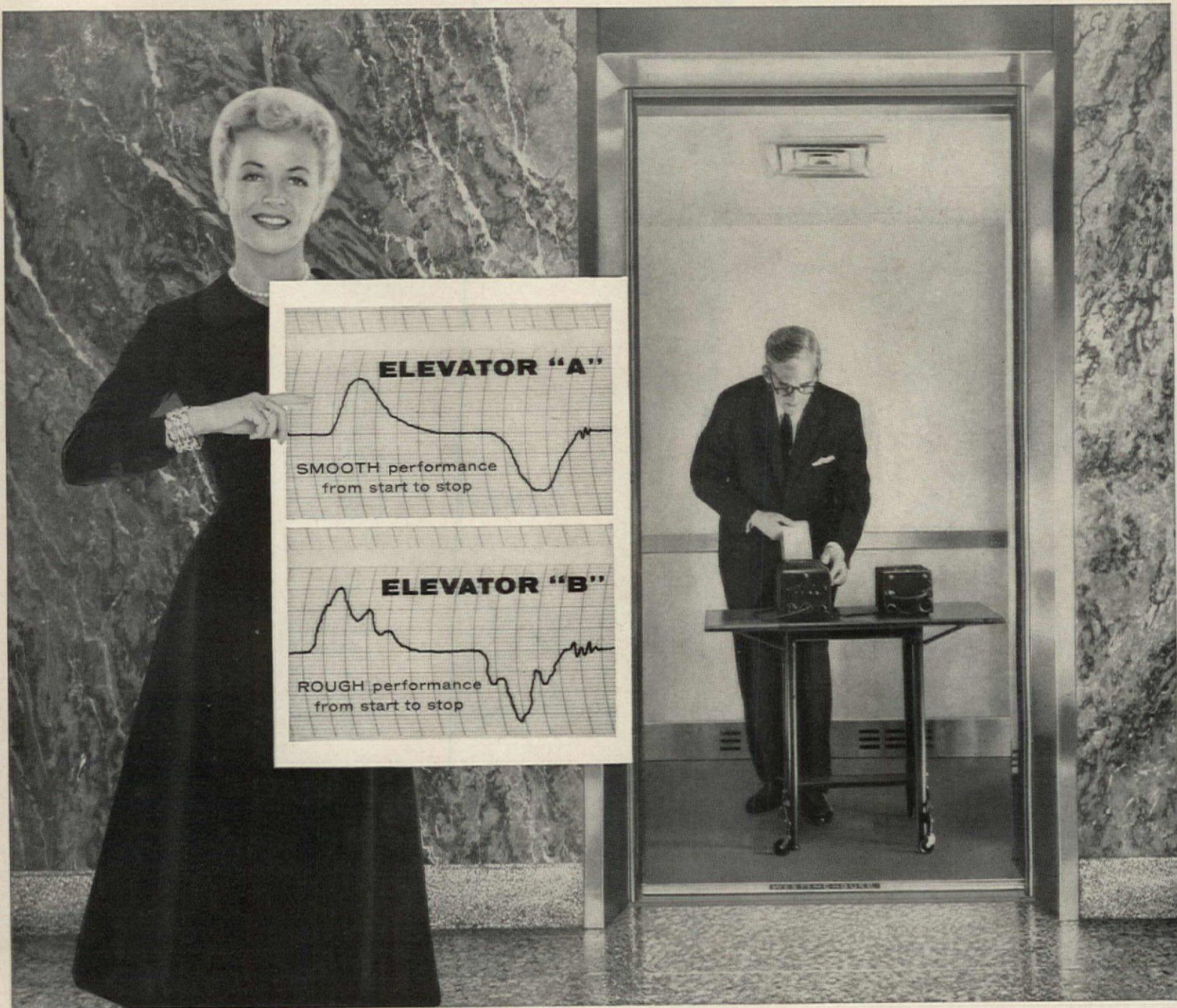
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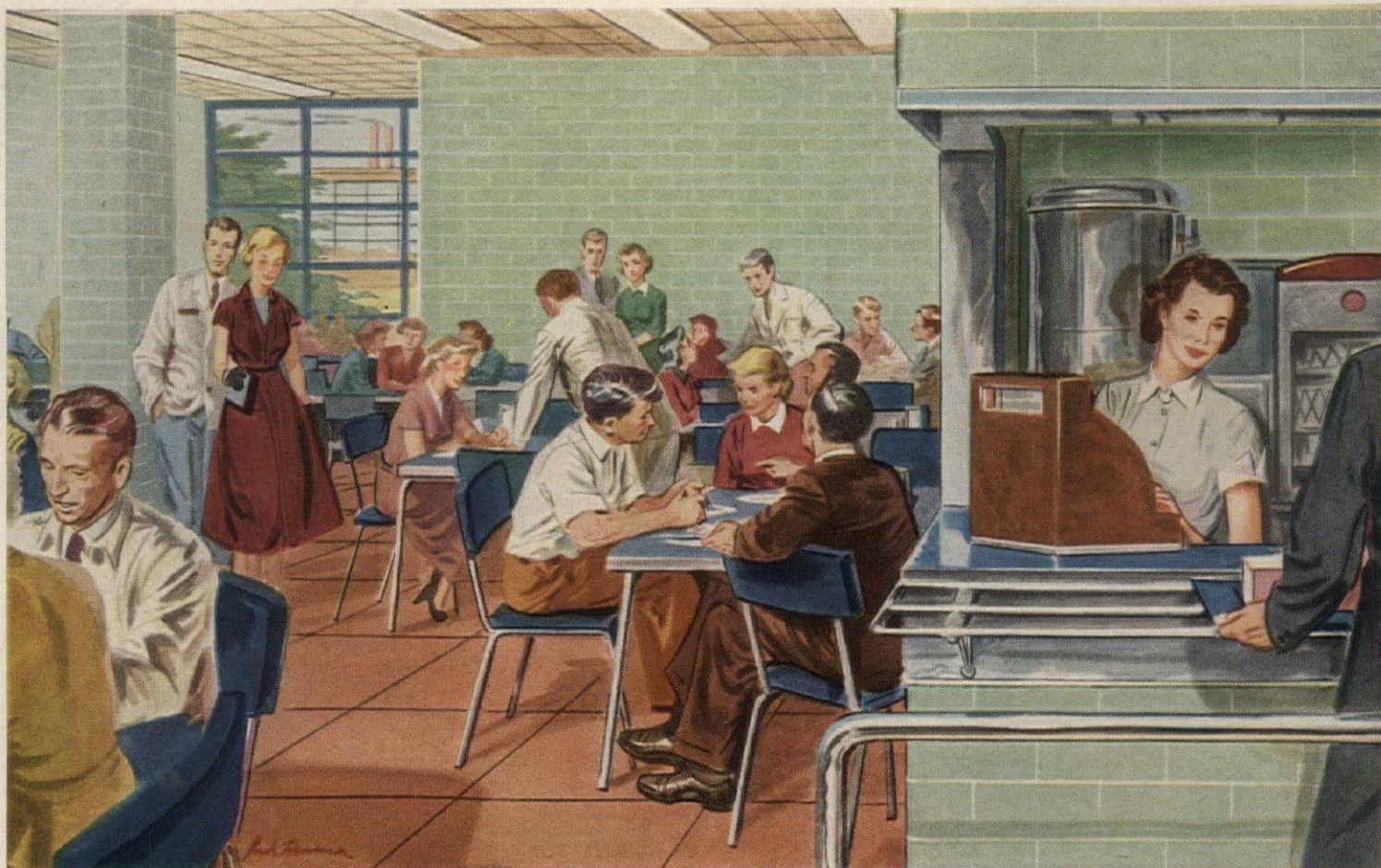
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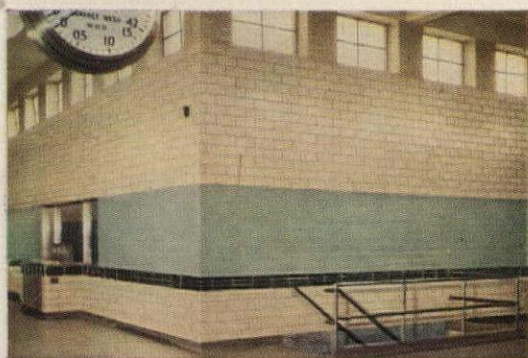
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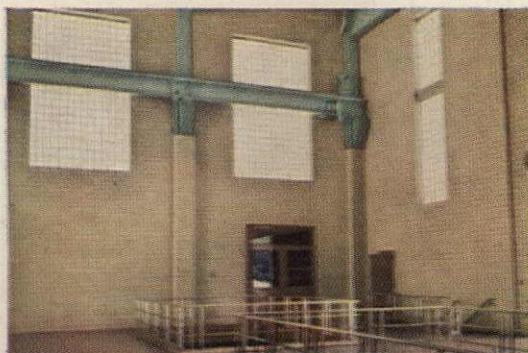


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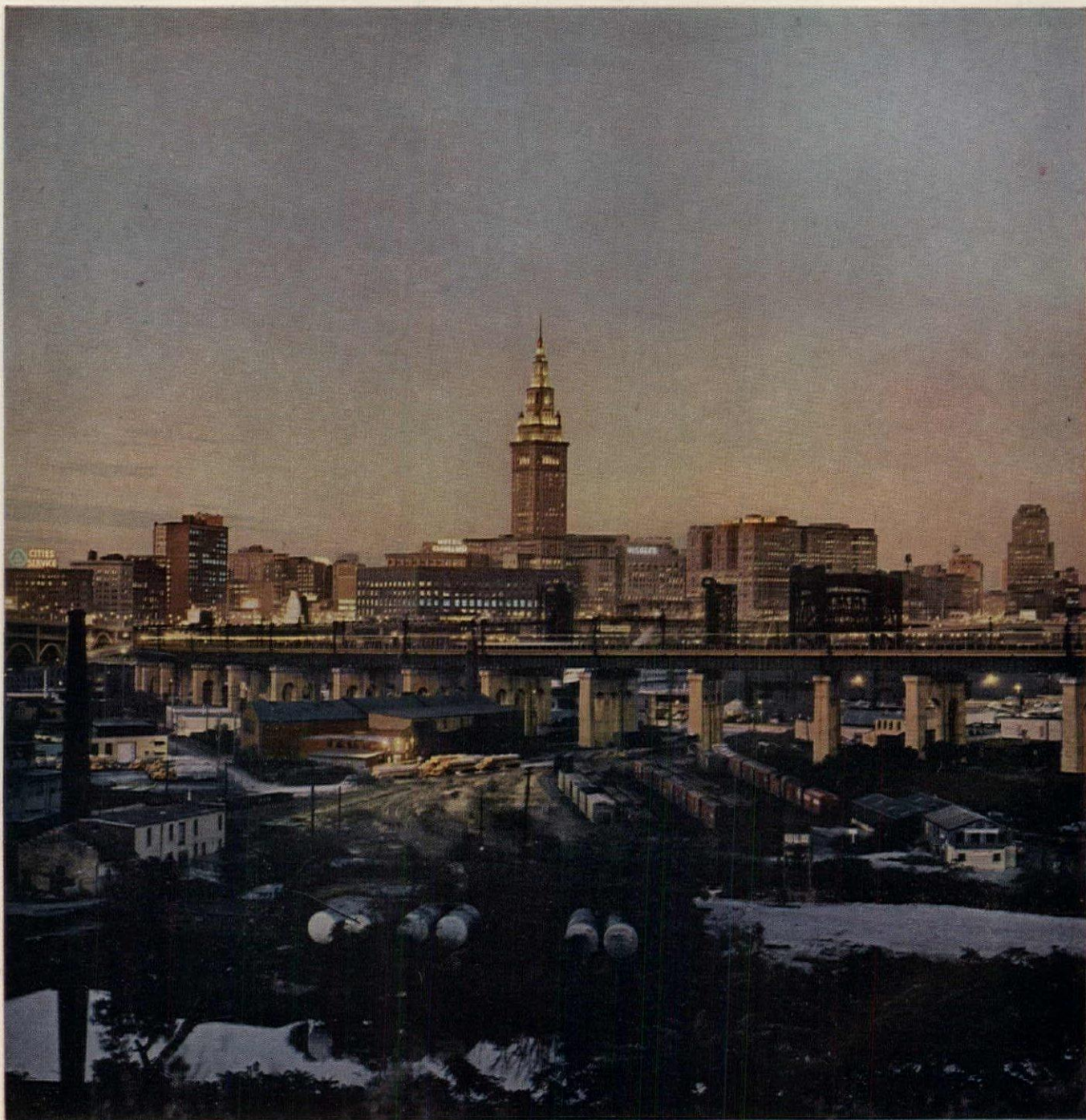
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MATTER OF TASTE

Forum:

Congratulations for one of the finest articles I have read all year. "The Debacle of Popular Taste" (AF, Feb. '57) goes into a problem which has reached astronomical proportions, not only for esthetics, but for religion as well. It is impossible to lead people to God if they have no grasp on the one, the true, the good and the beautiful, since these are the vehicles to Him. I congratulate Mary Mix Foley on her crispness and liveliness of style, too, which is all too rare in our nature-alienated, monotonous world.

REV. JAMES CARROLL
St. Matthew's Rectory
Ridgefield, N.J.

Forum:

I enjoyed Mary Mix Foley's discharge of steam about the evils of public taste.

The trouble with a good head of steam is that when it's released it doesn't come to a point. I would no more criticize Mrs. Foley for her passionate belief that architecture can save the world than I would criticize a lover for his ecstasy—a little embarrassing in public, perhaps, but none of my business.

Life must be truly dreadful for Mrs. Foley, and she has my sympathy. Her trouble, I'm afraid, is that she worries too much about taste. It has been her kind of self-consciousness about being tasteful that has brought about the evil she decries.

If she were to direct her attention to the question of whether Americans really know how to have fun out of their surroundings she would come nearer to the core of the problem. She believes that you can change people by improving their taste; actually, taste reflects, it doesn't create a state of mind. If she wants public taste to reflect her taste then she will have to make society over into her own image. Can that really be what she wants?

RUSSELL LYNES
New York, N.Y.

Forum:

Mary Mix Foley's article, "The Debacle of Popular Taste," in your February issue is most pertinent. It happens that there is a "democracy-minded" public official who desires our firm to design a new \$2 million courthouse to the mob's current taste. Because of him we are most sympathetic toward Mrs. Foley's conclusions. We have fed him the book, *The Taste-Makers*, by Russell Lynes (see above—ED.) and have

now handed him Mrs. Foley's article.

Incidentally, who is Mary Mix Foley? One who speaks so authoritatively must have had considerable experience in the architectural field. Whoever she is, she did a masterful job.

ROBERT WILMSEN
Wilmsen & Endicott, architects
Eugene, Ore.

■ Mrs. Foley is a former FORUM staff member. She is now a wife and mother, keeper of a tastefully furnished apartment in Syracuse and a part-time staff writer for ACTION (the American Council to Improve Our Neighborhoods). She developed many of her ideas on popular taste while living in the "new suburbia" near Washington, D.C.—ED.

TALK OF TECHNOLOGY

Forum:

Technology 1977 (AF, Jan. '57) was a very fine undertaking and beautifully accomplished—congratulations. The students in my planning and housing seminar wonder if reprints are available. We are particularly interested in the articles on "Landscaping" and on "A New Approach to the City."

FREDERICK A. CUTHBERT, professor
School of Architecture and Allied Arts
University of Oregon
Eugene, Ore.

■ Reprints of the editorial material in the January issue may be obtained in limited quantities at no cost by writing FORUM's Publisher's office, 9 Rockefeller Plaza, New York 20, N.Y.

Forum:

Many of us have found our way into the building industry without extensive backgrounds in technology. Yet no one can be actively engaged in the industry without being excited by the technical problems and stimulated by technical solutions, no matter how remote his own special province may be from the actual area itself. It is, therefore, my judgment that an issue of this kind is good for everyone.

PHILIP M. KLUTZNICK
American Community Builders, Inc.
Park Forest, Ill.

NATURE OF LIGHT

Forum:

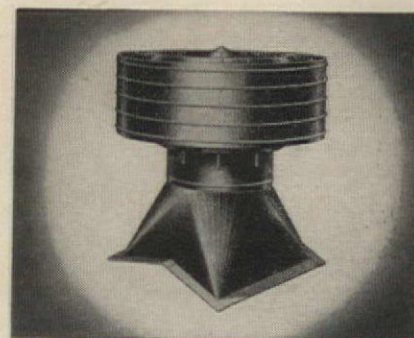
It is gratifying to read of the current accelerated interest in architectural lighting design, as exemplified in your article, "New Progress in Light" (AF, Feb. '57).

continued on p. 96

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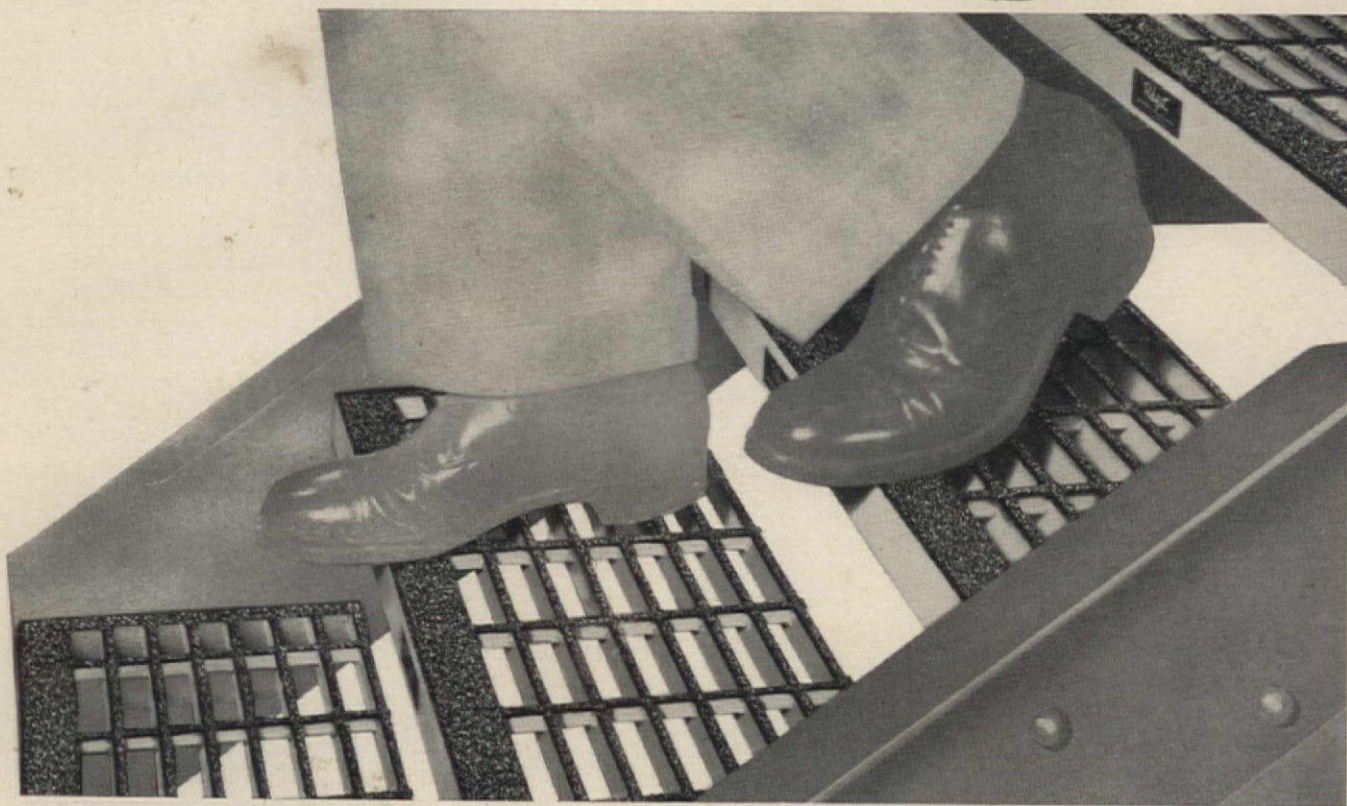


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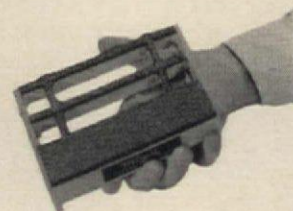


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I feel, however, you should go one step further in your comment, "The great future is in bold experiments to understand better the nature of light and the human eye" and add "the relationship of light to human emotions."

GERALD B. EWING
 Wilton, Conn.

Forum:

The excellent article on light in your February issue is the first I have ever seen that really gives the reader a picture of the startling facts.

E. W. BEGGS, *manager*
 Commercial Engineering Dept.
 Westinghouse Electric Corp.
 Bloomfield, N.J.

VIEWS OF THE PARK

Forum:

As for Mellon Square, you are so wrong. On p. 150 of the February issue, FORUM says "... a few office workers eat a sandwich there on a sunny day. But it is hard to detect any greater human activity." On a sunny day, it's difficult to find a wall to lean against, let alone a place to sit. Only a gale will keep the people out of our pretty Mellon Square.

JEANNE VAYDA
 Ketchum, Inc.
 Pittsburgh, Pa.

Forum:

Mellon Square may be the "eye" of its concrete, aluminum and stainless steel landscape. But it is not a park. It is essentially a barren, hard, stiffly formal space with a few trimmings of low trees and shrubs. It is the roof of a garage and a row of stores whose primary purpose is to provide downtown parking facilities and produce the maximum amount of revenue from store rentals. And what's more, it's almost inaccessible to pedestrians.

But at least, in this case, a pleasant oasis in the center of the city was not destroyed in a vain attempt to solve the parking problem, as was done in San Francisco and Los Angeles and is now being done in Detroit.

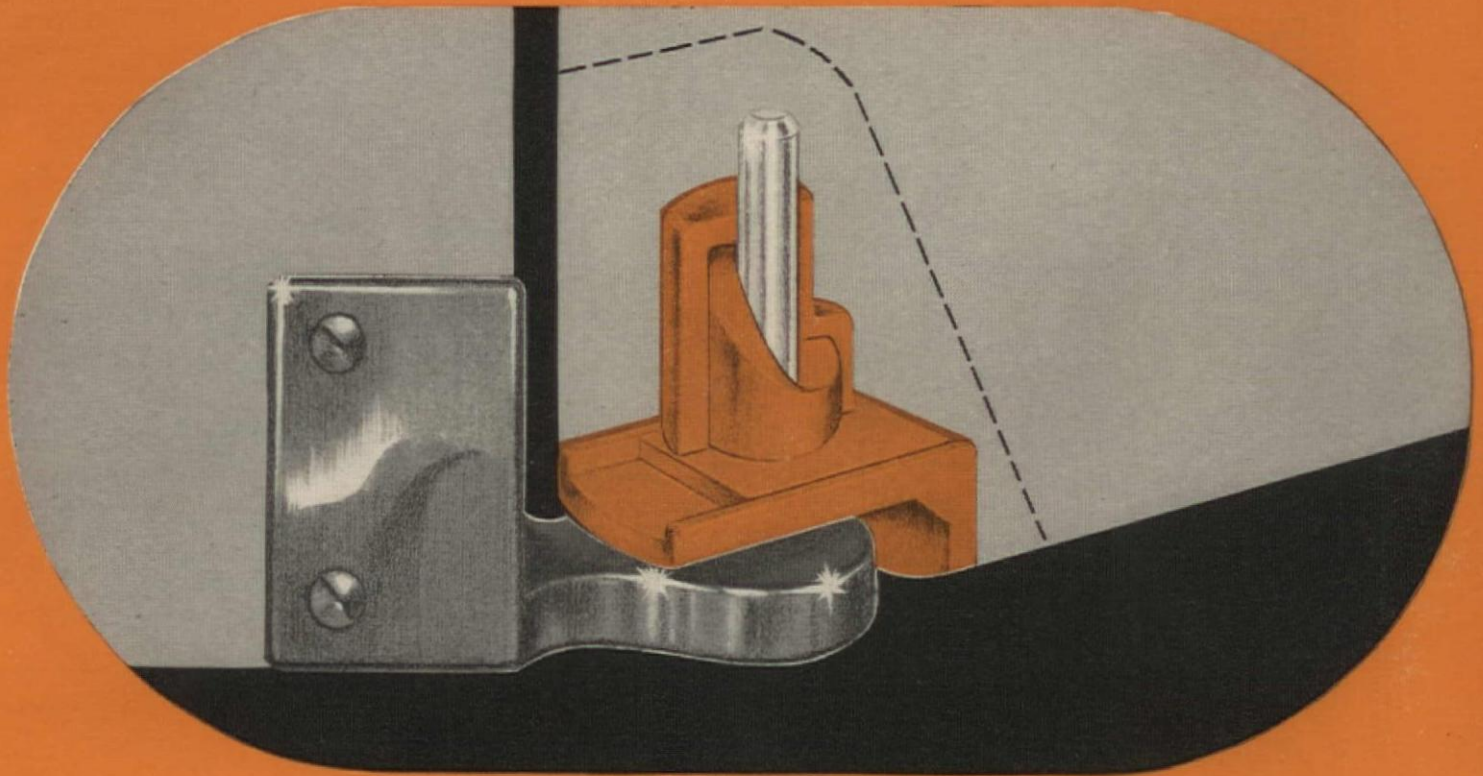
Parks that long seemed easy prey to those who were seeking a site for a firehouse, museum or Legion Hall are now falling to the garage builders. And as always, the argument is that the destruction is really going to enhance the original purpose to which the land was dedicated. If we are going to sacrifice our parks ruthlessly and create nothing but rooftops and formalized "plazas" in their place, we will find that they possess nothing but that "wistful, indeterminate, deserted quality" that Mr. Gutheim and I deplore.

JULIAN H. SALOMON, *landscape architect*
 Suffern, N.Y.

continued on p. 98

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PERLITE INSTITUTE

THE ROBOT-ARCHITECT

Forum:

I have an interesting footnote to your editorial on the Machine-Made Parthenon (AF, Jan. '57).

When in 1933 CIAM (Congrès International de l'Architecture Moderne) visited Athens, the engineer, Nicolas Balanos, curator of Antiquities, was our guide around the Acropolis. A few years later his most important publication appeared: *Les Monuments de l'Acropole* (Paris, 1936).

At the time Balanos spoke to our small group (composed of young architects such as Aalto, Le Corbusier, José Luis Sert, painters such as Fernand Leger and Moholy-Nagy, and some poets), he said that in reconstruction of certain parts of the Propylaea he had found the ends of the marble blocks jointed so precisely that he believed only machines could have turned out such exact work; and that even if we now have no traces and no mentions of these machines, they must have existed!

I should add that to prepare for the age of the builder-robot, the first thing must be to establish an age of sensitivity. Otherwise, without question, the robots will destroy the last remnants of high civilization more thoroughly than could any atomic weapons.

S. GIEDION
Graduate School of Design
Harvard University
Cambridge, Mass.

SHARE THE LANDSHAPING

Forum:

The "bulldozer and its monstrous progeny" will certainly be needed to excavate a tomb big enough for your ill-conceived "New Approach to Landshaping" (AF, Jan. '57). Landshaping—perish the term—you hail as a major new area of participation by the architect, by which we assume you propose his annexation of the sculpture of the earth by right of eminent domain. A major fallacy in such a notion is the fact that the architect is not trained to handle large-scale grading, nor is the scale of such exterior space comfortable in his hands.

We feel that our profession is closely allied with that of the architect—that for optimum results we must work together without coveting each other's talents—and certainly without attempting to usurp them.

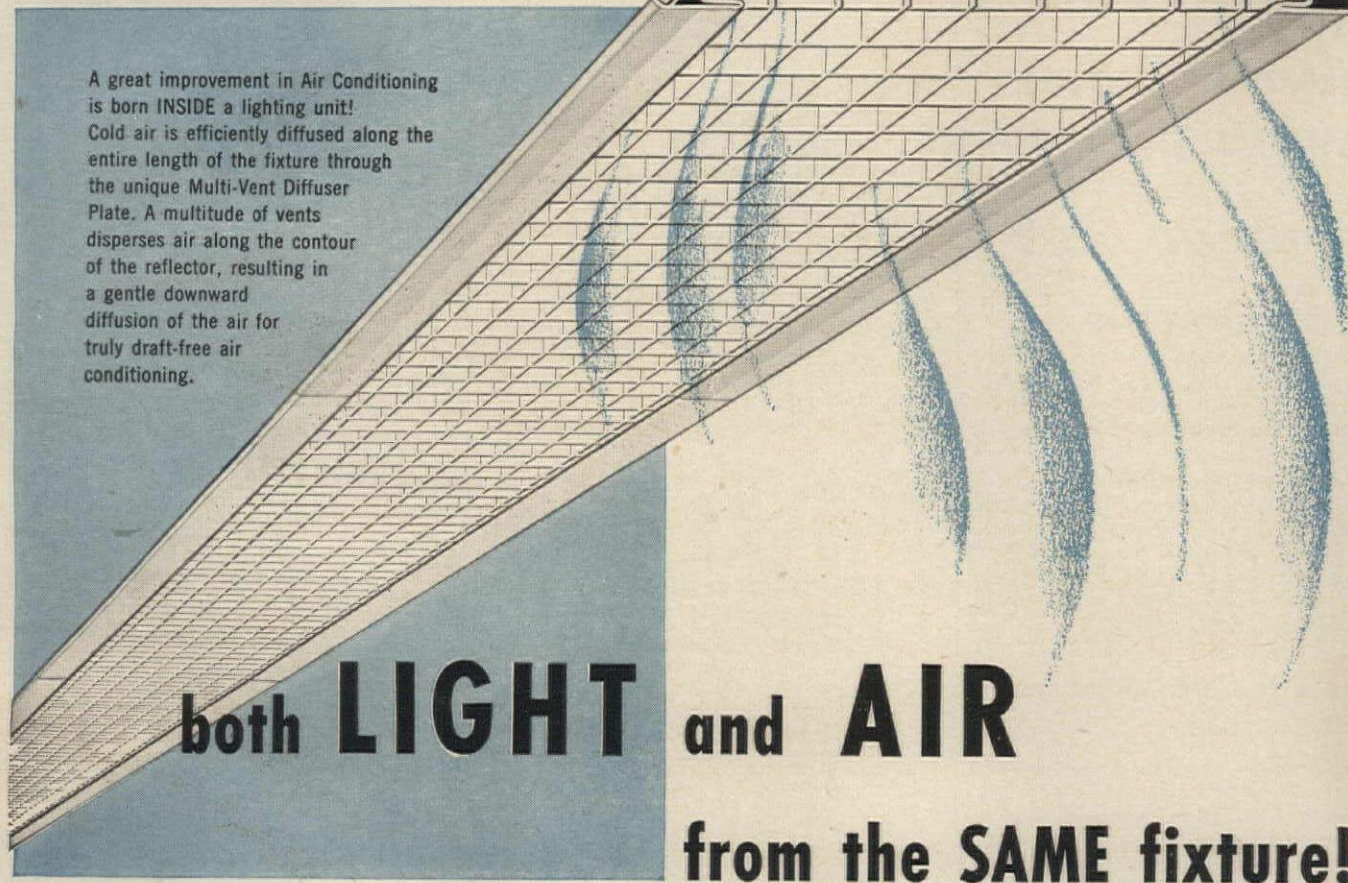
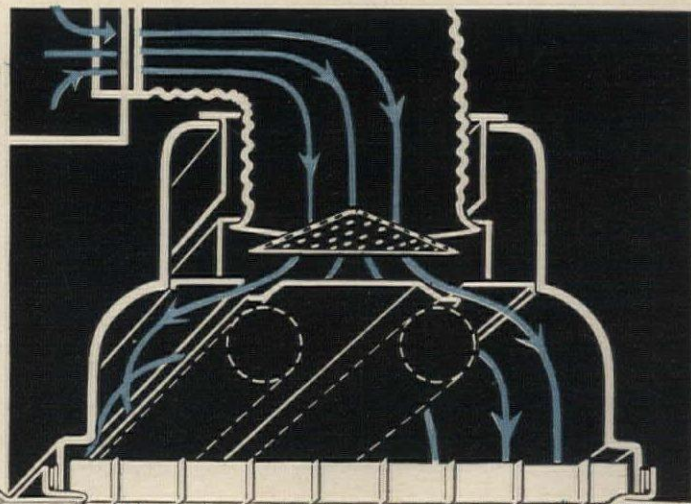
ARTEMAS P. RICHARDSON
Olmsted Brothers, landscape architects
Brookline, Mass.

■ FORUM called for participation, not usurpation, assumed that the contribution of landscape architects to more civilized building projects was well known.—ED.

continued on p. 100

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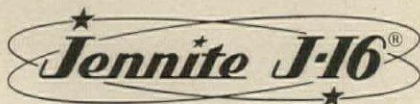
Letters

cont'd



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NEW APPROACH

Forum:

We would like 1,000 reprints of your article "A New Approach to the City" (AF, Jan. '57) for distribution to the members of our state legislature and mayors of cities and towns throughout the area, plus presidents of leading civic clubs.

The Wisconsin Supreme Court has just ruled in favor of a court case which tested the validity of lake fill-in. It is another hurdle cleared toward the ground-breaking of Frank Lloyd Wright's project for Madison, which was featured in your article.

MARY E. AMEND, managing editor
"Land Economics"
Madison, Wis.

NEW STAGE

Forum:

We enjoyed seeing your preview of the Lincoln Square Theater Project (AF, Feb. '57). But we would like to point out a fact not mentioned in the story: our firm is working on the project in close coordination with Jo Meilziner, the prominent stage and set designer, as collaborating designer.

CHARLES W. STANTON, chief architect
Pereira & Luckman
New York, N.Y.

KUDOS

Forum:

Your reports are a great aid in trying to keep readers informed of rapidly changing developments in building.

DANIEL F. O'LEARY
Real estate editor
"The Evening and Sunday Bulletin"
Philadelphia, Pa.

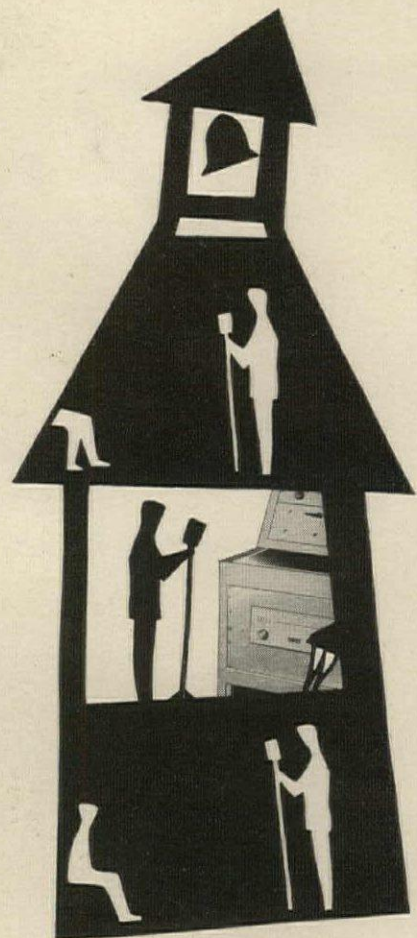
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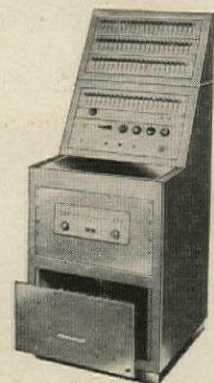
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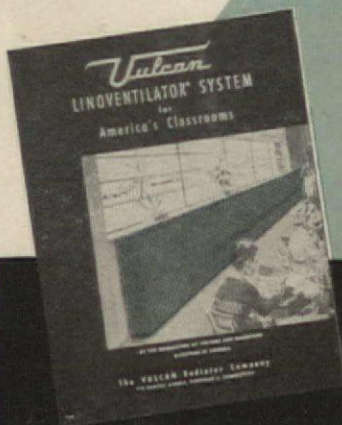


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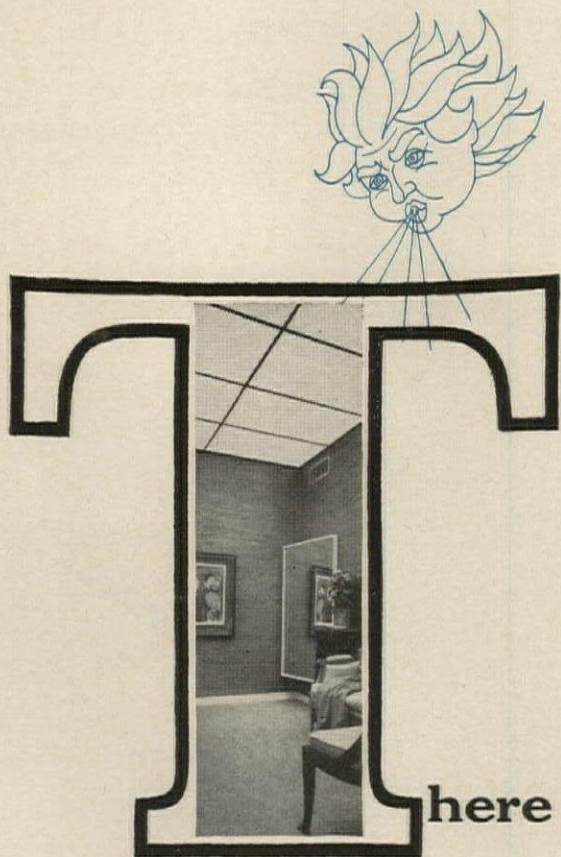
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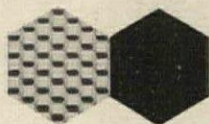
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Leon Chatelain renominated for AIA presidency; defeated congressman set for FHA post

TIERNY & KILLINGSWORTH



CHATELAIN

No contests were in sight last month for the presidency or for four regional directorships to be filled at the AIA's centennial convention in Washington next month. Washingtonian **Leon Chatelain Jr.** has been nominated for his second term as president, and these nominations made for the regional directorships: Texas district, **R. Max Brooks**, of Austin, to succeed **Albert S. Golemon**; South Atlantic district, **Sanford W. Goin**, of Gainesville, Fla., to succeed **Herbert C. Millkey**; Central States district, **I. Lloyd Roark Jr.**, to succeed **Frank N. McNett**; California-Nevada-Hawaii district, **Ulysses Floyd Rible**, of Los Angeles, to succeed **Donald Beach Kirby**. Other offices to be filled are first and second vice presidencies, secretary and treasurer. Nominations by petition closed April 3, but additional nominations can be made from the convention floor.

WHAT'S IN A NAME?

With approval of all 11 constituent chapters, directors of California's state AIA organization formally gave their body a revised title. Henceforth it is officially the California Council, The American Institute of Architects (and no longer the California Council of Architects, a State Organization of the American Institute of Architects). New council president: **William Glenn Balch**, of Los Angeles, who succeeds San Franciscan **John Lyon Reid**.

That names alone do not always reveal the full scope of any organization's interests was also demonstrated by another industry group in California in February, when the Building Contractors Assn. of California sponsored "Builders' Night at the Los Angeles Philharmonic." Extra funds raised through this benefit performance, arranged by BCA President **Bob F. Roberts**, of San Bernardino, and Southgate Builder **Lindsay Vandruff**, were contributed to the BCA scholars fund for UCLA construction management students.

FHA LEGAL CHIEF

Scheduled to step into FHA Washington headquarters as general counsel last month was a former New York legislator and defeated congressman who was hard to classify politically. Originally a Democrat in various New York offices, **James G. Donovan**, 58, was the Democrat-Republican-Liberal coalition candidate who un-

seated left-winger Representative **Vito Marcantonio** in 1950. Four years later the Liberals deserted him as "a Republican in Democratic clothing," but he was re-elected with joint Republican and Democratic support. Last November, however, the Democrats abandoned him too, and he went down to defeat running on the Republican

INS



DONOVAN

ticket, although he said he still considered himself a Democrat or "Democrat for Eisenhower." A native of Clinton, Mass., he attended Harvard and M.I.T. and received his law degree from Columbia in 1924.

Donovan would succeed 42-year-old Philadelphia lawyer and housing expert **Robert B. Wolf**, who resigned in February after exactly one year in office. Wolf's parting was one of "mutual consent." Relatively independent, formerly a director of Hercules Cement and Botany Mills, Wolf had taken a government job because he felt citizens have an obligation to make a contribution to the government if they can. But after a year he was reported somewhat disappointed at his inability to expedite settlement of the 608 "windfall" cases and other matters as rapidly or effectively as possible in private business. On the other hand, agency officials were not too happy with a breezy, efficient, unindoctrinated nonagency executive in their midst.

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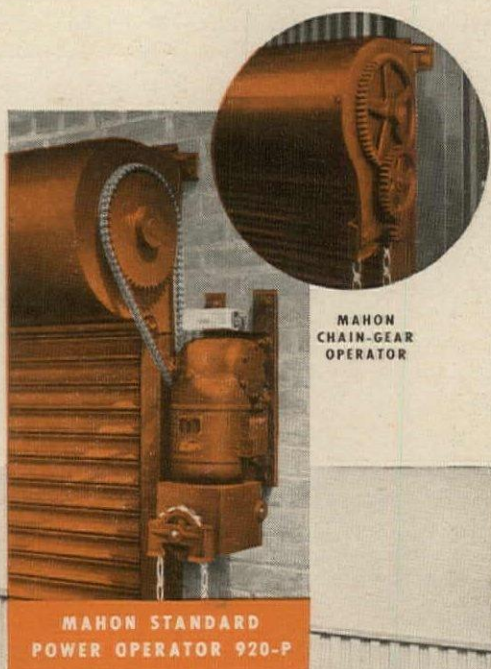
BUSY MEN'S AVOCATIONS

Visiting New York a month ago, NAREB President **Kenneth S. Keyes**, broker, manager and appraiser, switched his role from tenant to owner in the three-story annex

continued on p. 105

Rolling Steel Doors

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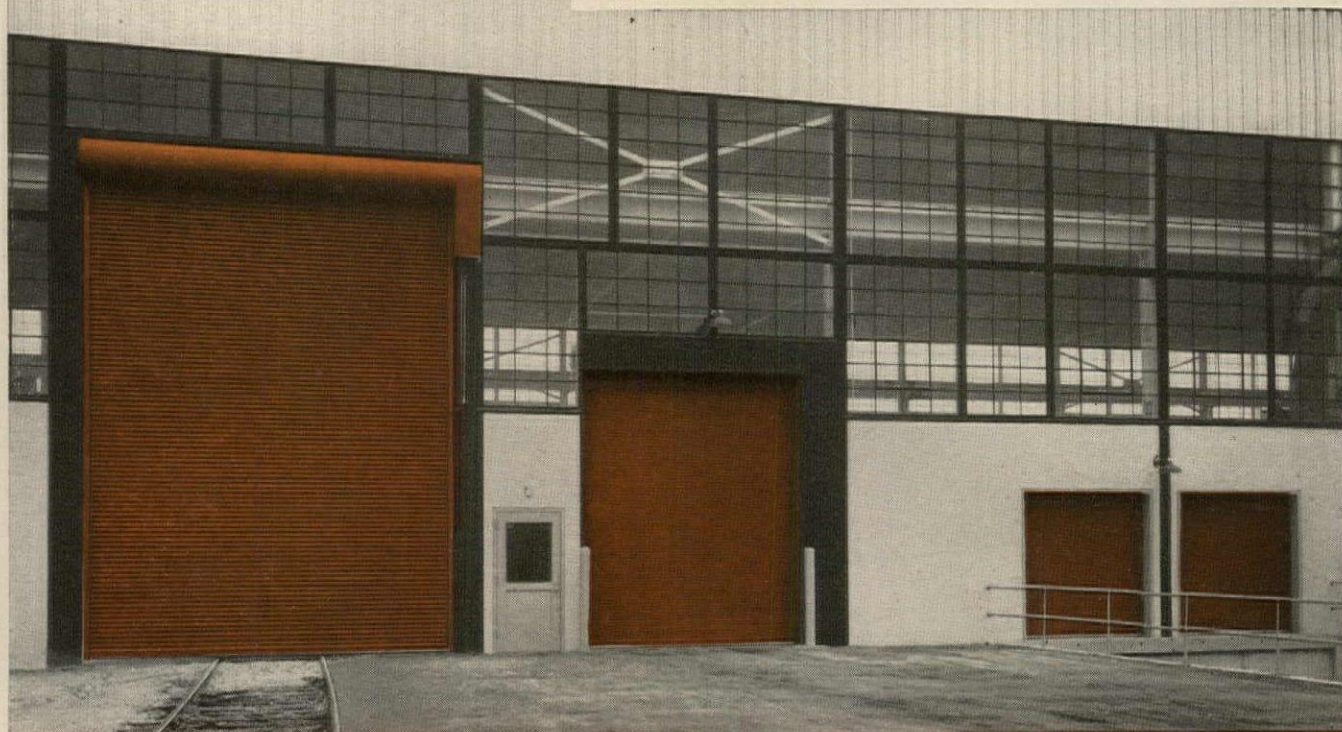


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MAHON

of the Everglades Hotel that serves as the Keyes Co. headquarters in Miami. In a stockholders' action, the property was being offered for sale in a New York court, and Keyes was the only bidder, at upset price of \$1.8 million—all cash—putting him into the hotel business to boot.

Philadelphia Realtor and Planning Commission Chairman **Albert M. Greenfield**, whose Bankers Securities Corp. and other organizations control a wide variety of nationwide ventures—hotels, jewelry and department stores, candy manufacturing—stepped into still another business: taxis. He acquired a 75% interest in Yellow Cab Co. of Philadelphia (and Camden, N.J.), which on the side also operates ambulances and airport limousines.

But millionaire building contractor and Democratic National Treasurer **Matthew McCloskey**, also of Philadelphia, was not quite so successful in his venture in newspapering. Last month he had withdrawn as publisher (but remained as board chairman) of the Philadelphia *Daily News*, which he acquired in 1954. He had increased the news staff from 28 to 128, spent \$1,250,000 for new presses, and converted from Republican to Democratic editorials, but after two years was losing \$50,000 a week for his pains. It was time, he decided, to turn over management to more experienced Publisher **David Stern, 3rd**, of the *New Orleans Item*, who eventually was expected to purchase the publication.

ARCHITECTS AND PLANNERS

ASPO President **Park H. Martin** resigned as executive director of the Pittsburgh Regional Planning Assn., and was succeeded by Assistant Director **Patrick J. Cusick Jr.** Martin continues as a consultant to the association, however, and as director of the Allegheny Conference on Community Development.

In Chicago, Mayor Daley appointed the nine citizen members of the new advisory plan commission that will work with the recast department of city planning (AF, Feb. '57). Among them: Architect **Charles F. Murphy**, of Naess & Murphy, named chairman for a five-year term, and Architect **John Wellborn Root**, of Holabird & Root & Burgee, who headed the old commission's planning committee.

Organized at the recent Bogota, Colombia international planning and housing conference: an Inter-American Society of Planning that will be a regional affiliate of the International Federation for Housing and Town Planning. **Rafael Pico**, former president of ASPO, secretary of the treasury of Puerto Rico, was elected first president of the new society.

HONORS AND AWARDS



HOLDEN

For his distinguished work in housing, architecture and city planning, the New York City AIA chapter gave its Medal of Honor to **Arthur Cort Holden, FAIA**, president of the chapter in 1944-45.

Chicago's AIA chapter held a dinner meeting in honor of Architect **Paul Nelson**, of Paris, and six other recipients of

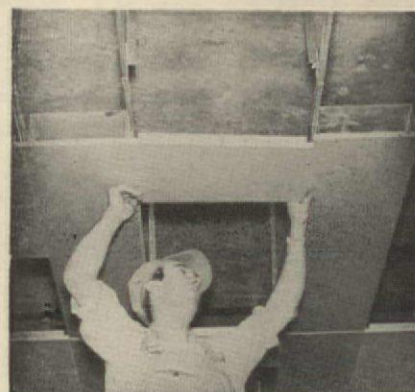


NELSON

this year's Graham Foundation fellowships in the fine arts, who receive \$10,000 each for any type of postgraduate work of their own selection (AF, Feb. '57). Chicago-born Nelson has resided in France for many years and is best known for his Health City, in Lille, and the new Memorial Hospital, in Saint-Lô.

Awarded the 1957 Royal Gold Medal for Architecture by **Queen Elizabeth**, on recommendation of the Royal Institute of British Architects: **Alvar Aalto**, of Finland.

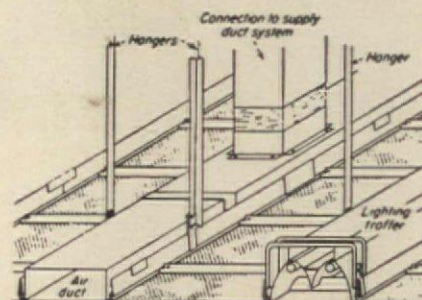
DIED: **Robert S. Groman**, 47, former president of the Los Angeles County Regional Planning Commission, Jan. 26, in Los Angeles; **Marian Cruger Coffin**, 80, estate and college landscape architect, recipient of the 1930 Gold Medal of Honor of the New York Architectural League, Feb. 2, in New Haven, Conn.; Architect **C. Godfrey Poggi**, 81, designer of many churches and public buildings, former president of the New Jersey State Board of Architects, state AIA chapter and Society of Architects, Feb. 14 in Cranford, N.J.; Stamford, Conn., Church Architect **Raphael Hume**, 68, former president of the Liturgical Arts Society and reconstruction designer for the University of Nijmegen in the Netherlands, Feb. 16 in Mexico City, where he was vacationing; **Louis E. Jallade**, 81, former president of the New York Society of Architects, Feb. 26 in New York.



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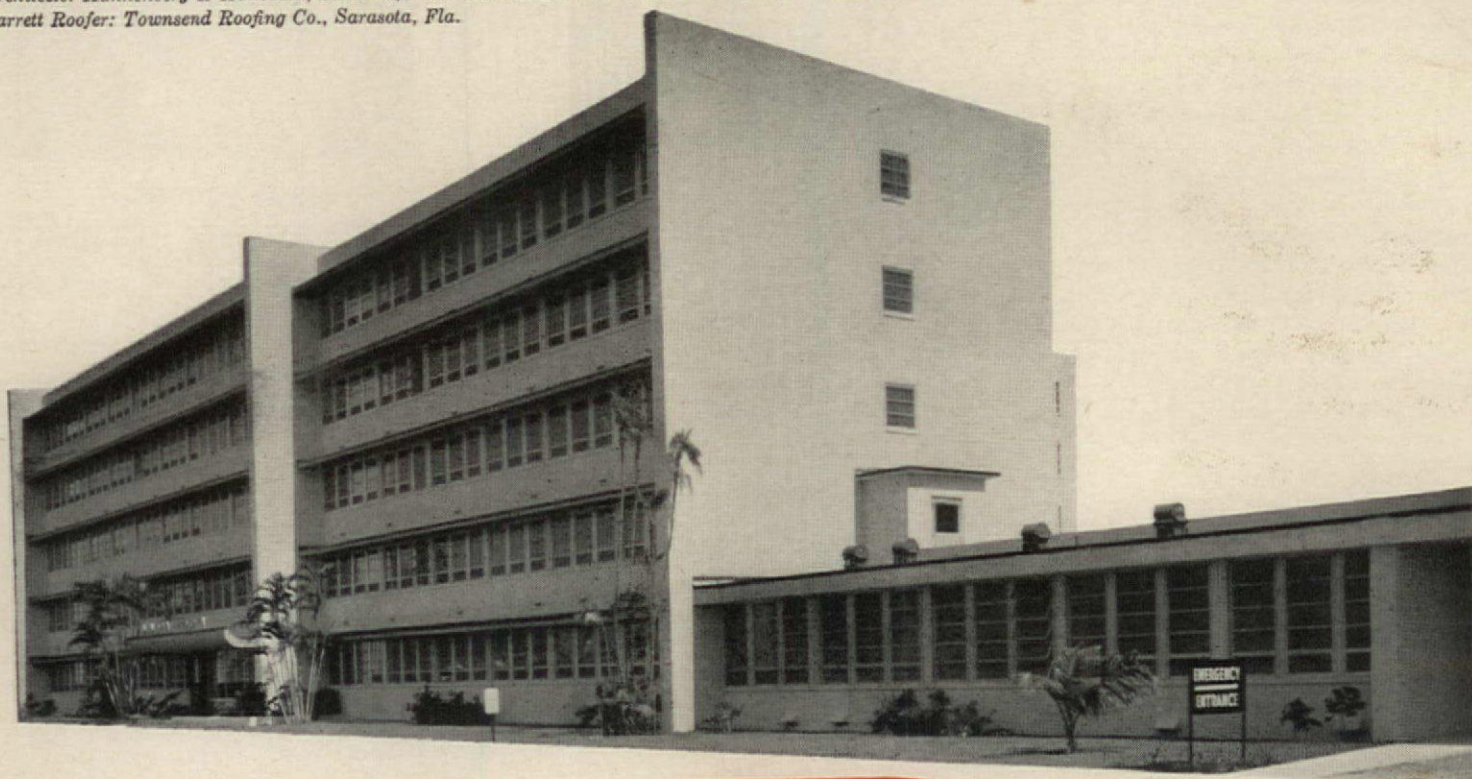
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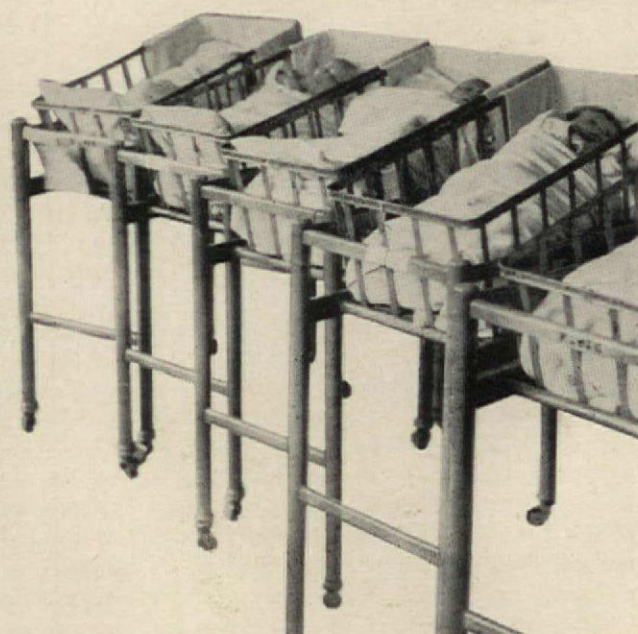
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Editorial

The value of used architecture

This is the time of the year when literally millions of Americans are planning their next summer's tour to Europe or Asia to look at old cities and beautiful monuments. The smarter folk are consulting lunar calendars so they can climb the Acropolis under full moonlight or use it for a visit to the Coliseum. They will invade Chartres, Cordova, Bangkok and Bath, England. They will feed their souls in the world's obsolescent cities and its storehouses of used architecture.

It is a fine thing to do.

Yet the very things that Americans adore abroad they destroy systematically at home. Old buildings are broken up in the US as fast as used packing boxes to make way for new ones. We have no cultural custodians to sort out the values, beyond a few societies for the Preservation of Historical Monuments—and these judge old structures by their sentimental associations rather than by their intrinsic esthetic significance, or their contributions to beauty, as if it were magic just to stand where Mark Twain stood or to sleep where Washington lay awake. If we had a Sainte Chapelle in New York and it stood in the way of a new speculative office building, we would pull it down at once without further question. The Pyramids, having already stood through five thousand years, have a better chance of rounding out another cincomillenium than

any five-year-old American masterpiece has of rounding out the decade.

The loss we endure though this is not merely sentimental. What we lose is our funded experience. Just as the best school of architecture is the masterly building, so the only effective repository of architectural ideas and architectural beauty is a standing one. Architecture is an art whose masterpieces cannot be stored away like paintings or reproduced centuries later like poetry or music. The art lives on in used buildings; they alone can carry it. Without them we are perpetual juveniles, starting over and over, a people without a memory.

A case in point today, in greatest urgency, is an American house called the Robie House in Chicago. It was built half a century ago from plans by Frank Lloyd Wright. Unless something effective is done at once it will be torn down this fall by its present owners, the Chicago Theological Seminary, to make room for housing. If destruction does ensue, this great and important building, one of fewer than half a dozen houses in the world that now rank as sure masterpieces of "modern" architecture, will have died before it was properly born. Look at it this way: construction was in 1908, but not until around 1930 was the Robie House appreciated by any sizable number of qualified critics. In 1957 it is known

(outside the architectural profession) by perhaps ten thousand cultivated people. As far as the general American public is concerned the Robie House might as well be in China. A house like that cannot fully mature in less than a century. A hundred years may have to pass before the educated public will know that the Robie House is worth more than Mount Vernon as an expression of the genius of the American people. Mount Vernon is of use chiefly so we can touch a place that the great Washington lived in, and reassure ourselves physically that the historians have not been dreaming. But the Robie House is needed of and for itself as one of the wellsprings of the eternal human spirit. It must have its century at least, to stand in and be tested in.

What then is to be done, as a practical matter?

The first step is, vulgarly speaking, to find an "angel" for the Robie House—some great man or great institution who will put forth the \$100,000 or thereabouts that are needed to restore and reinstate it. Its owners can't do this. Next, there has to be a practical use for the Robie House. It is not the kind that can serve as a museum. But, strategically placed in the midst of the University of Chicago, it can be a

great guesthouse, a council house, a place for important medium-sized gatherings.

Then a site must be found for the needed dormitories. Chicago architects have privately told us what they dare not say publicly because of professional ethics: that they could help Architect John Root, who has the dormitory assignment, to build without taking any new property.

The sum of \$100,000 is a small sum as research funds go today in many an American industry. For research on schools the Ford Foundation has just offered \$5 million, if industry will match it—\$10 million in all, and all needed. Who will invest one twentieth as much in saving a magnificent piece of achieved "research" toward creating a great home of the American spirit?

Urban renewal jeopardized

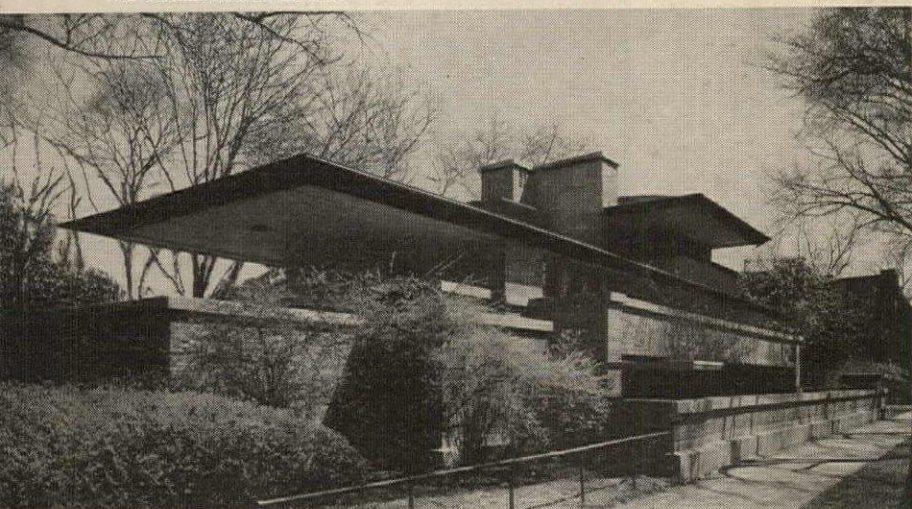
While we are on the subject of used buildings, let's look at money needed to keep our cities on the path of self-renewal, by helping them judi-

ciously to tear down worthless slums and trash, and replace them with healthy living tissue.

In its present mood the US Treasury, we hear, is moving to cut down appropriations for the Urban Renewal Administration. This is like slowing down an automobile by smashing its motor. By dint of immense labor, our American machinery for saving the fast bankrupting cities by calculated rebuilding has lately been set barely moving. Right now the Urban Renewal Administration is already "broke": its funds available for capital grant reservations virtually exhausted. In place of last year's \$250-million appropriation it needs, according to informed opinion, at least \$350 million for the year ahead: \$100 million more than it has had, not a smaller sum. Chances are that Eisenhower will not ask for it. Coupled with a weak administrative replacement (also threatened as we go to press), this could effectively set back the whole young movement of urban renewal for at least five years, maybe for ten, maybe for keeps.

It must be understood that these are not appropriations that have their effect in one year and can be juggled to meet momentary fiscal situations. The urban renewal process is slow, and projects take two, three, five and ten years in the making. And the beneficiaries of renewal are not isolated in any one business or industry. At stake in urban renewal is nothing less than economic health and a secured future for well over 100 million people living in cities: for their bankers, their merchants, their industrialists—and their families. It is hard to believe that an administration devoted to the common welfare could knowingly pinch off so much of the country's life blood to save a prudent penny. Some better way of stimulating urban renewal may be evolved than any we now have: but short of this, cutting off the funds for the only process we have would be the greatest folly.

BILL ENGBAHL, HEDRICH-BLESSING



PROPOSED STATE CAPITOL FOR ARIZONA BY

Few people know and love Arizona the way Frank Lloyd Wright does. He lives and works there half the year—at his 'Taliesin West,' in the desert outside of Phoenix. It was natural therefore that he should put his heart as well as his great talent into his proposed design for the state's new capitol.

In common with all of Wright's major projects, this scheme carries poetic allusion and symbolism in many different directions. For example, set in Arizona as an intensely American thing, it recalls a vast Indian tepee in its shape—a gesture against the traditional domes of our capitol. It fits into the landscape and the climate because the material for this great tent is not something solid, but a pierced screen of concrete. It thus becomes in Wright's words "a vast lath house" in a desert city where vegetation does not really thrive unless shaded—an all-embracing shelter for the structures, trees and gardens beneath it.

Like Spain's Alhambra, this capitol complex is conceived as a magnificent series of garden courts leading from one building to another. Along the way Wright counts no fewer than six fountains whose plashing sound and cooling effect will enrich the occasion.

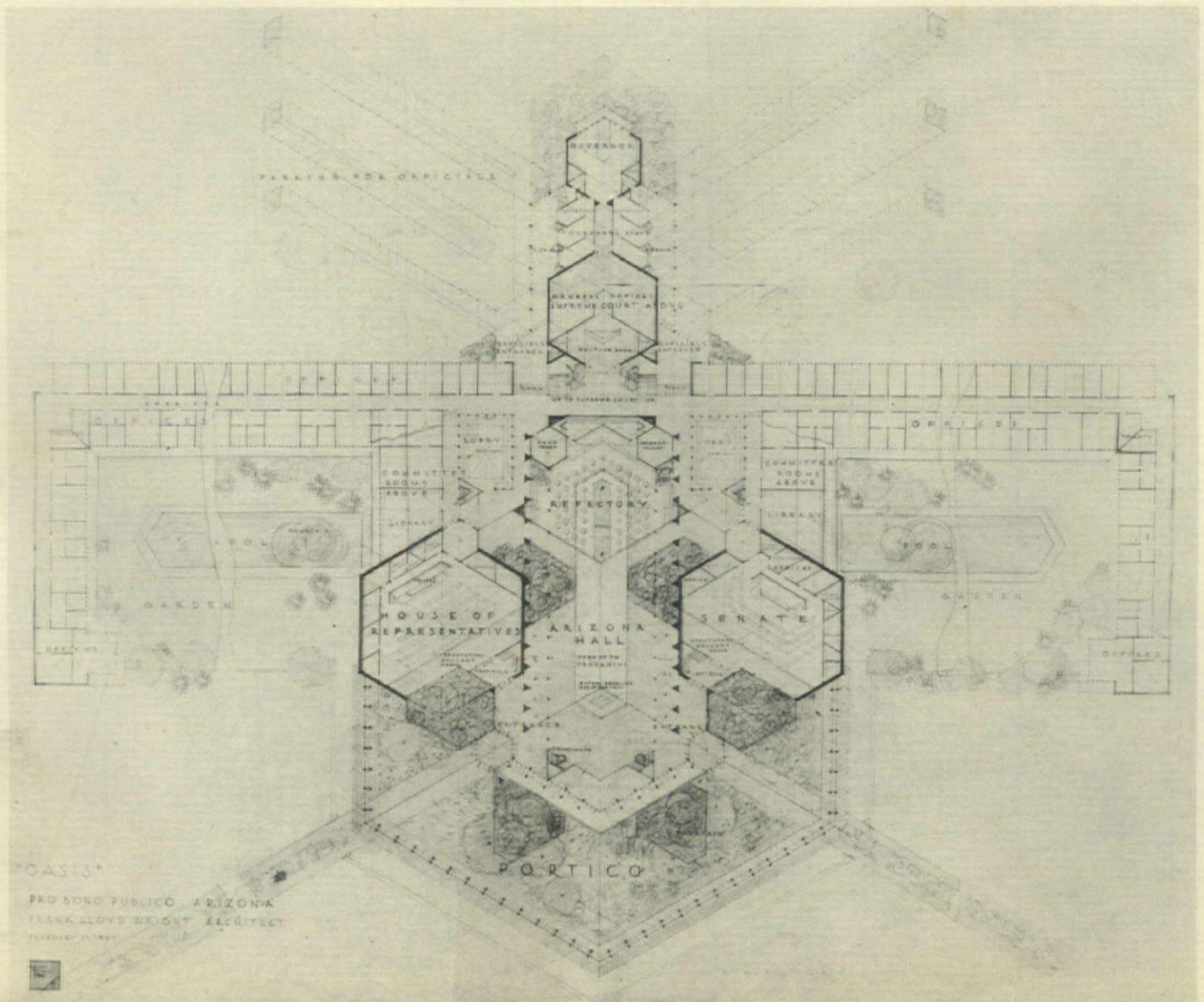
Because cars are parked at quite a distance (except for a very few needed for service), the whole building group is something for the pedestrian to enjoy as he walks through these enchanted gardens.

Here are excerpts from the architect's own description:

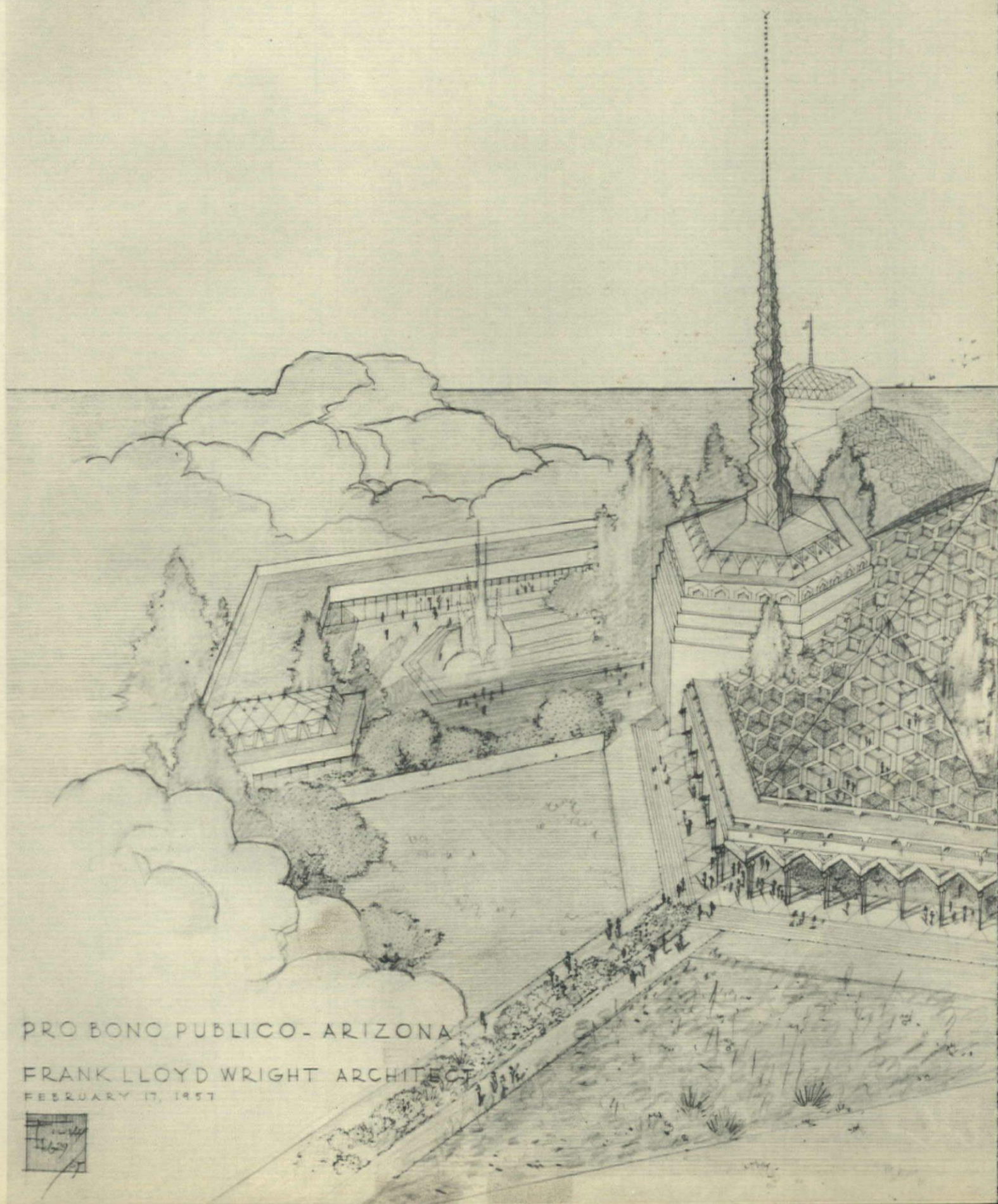
"The plan arranges all public spaces in relation to private offices and convenient circulation, both private and public, contributing to the comfortable use and beauty of the whole.

"The hexagonal dome is cast in eight-foot-diameter sections of reinforced concrete plated with blue copper; the duplex colonnades are onyx; the floors mosaic.

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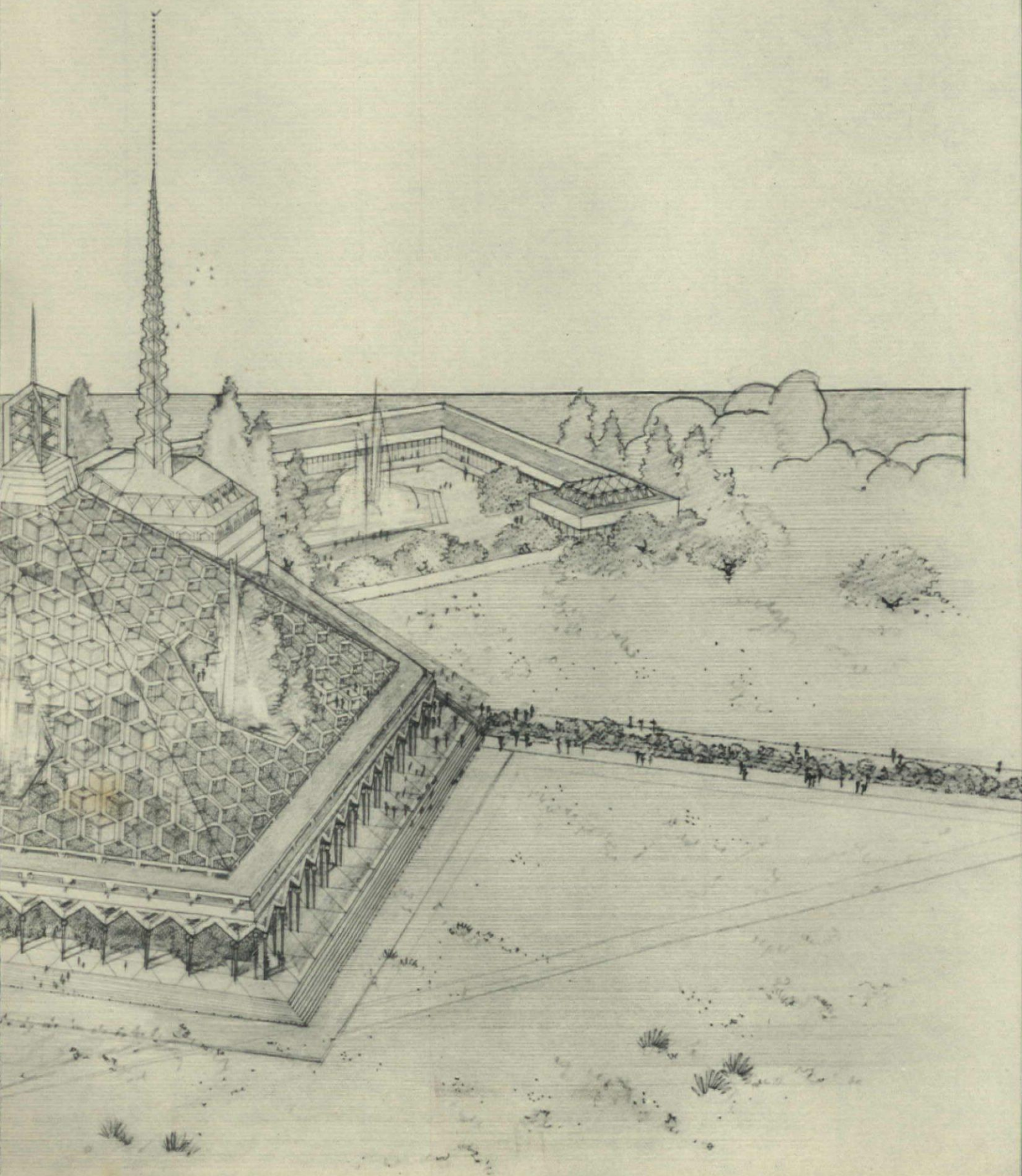


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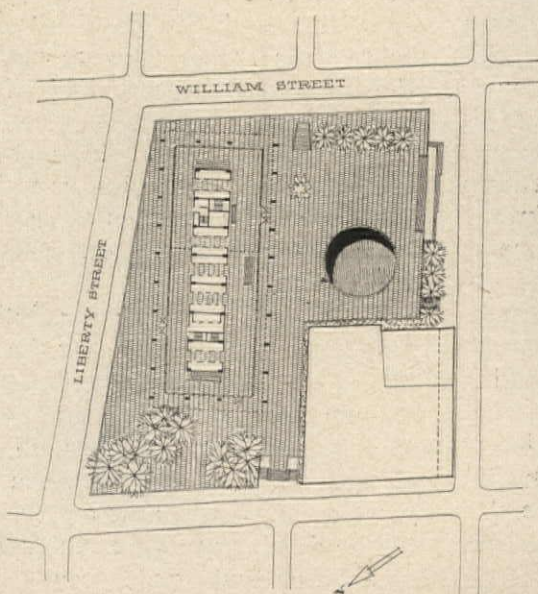
Investment in a little open space in the heart of downtown New York yields a new kind of office building for Chase Manhattan and knits it urbanely into its contrasting environs

Tower with a front yard

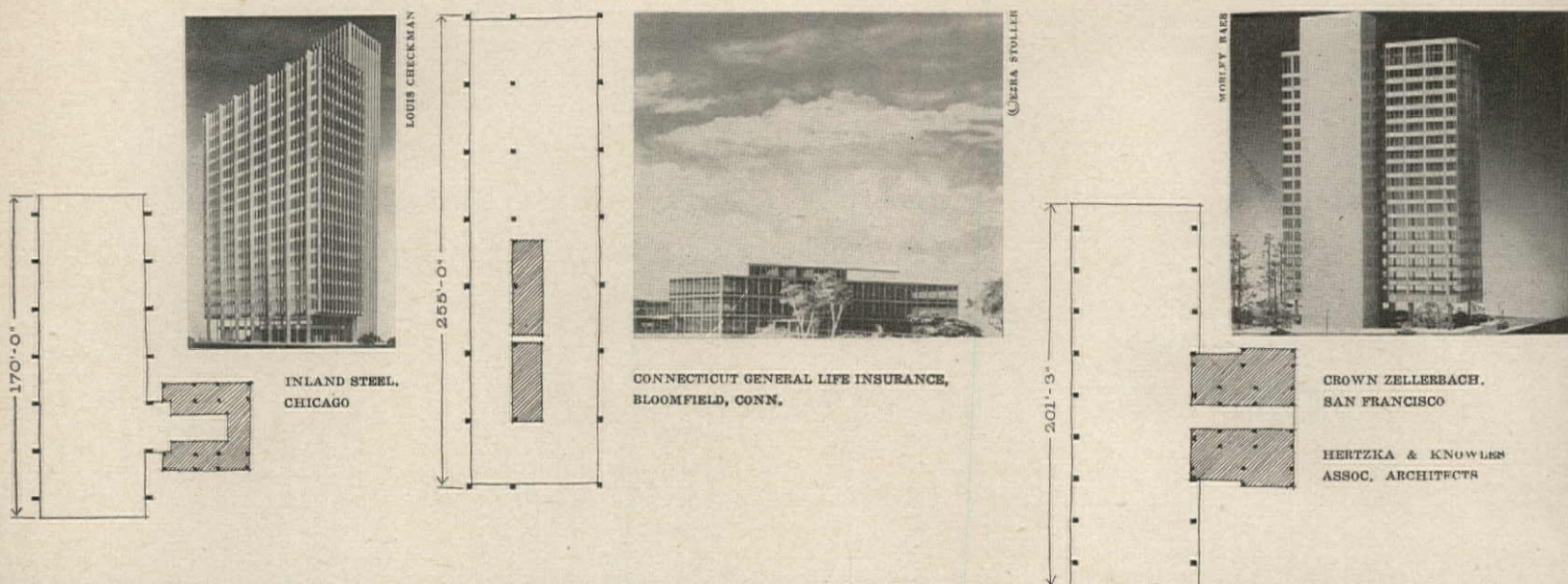
Office-building plazas have become high fashion, with the obvious justification that they provide light, air and a setting. These are admirable aims but limited ones. The great contribution of Chase Manhattan to the lore of plaza planning is to show how much more a plaza can do.

In this case Architects Skidmore, Owings & Merrill conceived of the plaza as an indispensable means of achieving more flexible and usable skyscraper floors; then they ingeniously used it also to solve a difficult but valid problem of symbolism—making what is essentially an office building say “this is a bank.”

But the lesson of widest application which this plaza offers is the beautiful way it knits old and new together and thereby becomes true urban design instead of an egocentric frame for a new work. The scheme's greatest stroke of good fortune was the fact that the old Chase Manhattan headquarters building, occupying about a third of the southern block of the two-block site, was too valuable for demolition. This enormous “obstacle” was neither snubbed nor merely tolerated. It was welcomed into the design, and the result is an intricate set of differentiated spaces that, when walked through, will be experienced as a series of pleasant surprises instead of a static, isolate, instantly apprehended clearing. Opening off of the financial district's narrow canyon streets, or approached along the arcaded sidewalk beneath the old building, or—best of all—through the walkway between old and new, this space is not just light, air, frame. It is high drama.



Site combines two blocks, turns former dividing street into pedestrian way as part of plaza. In return, Chase Manhattan ceded to city a surface strip for street widening around all sides of the superblock, totaling slightly more than land gained from cross-street surrender.



Chase's tower is a high-rise example of the architects' flexible office floor

Much office-building design these days is strictly façade architecture. The big decision is "What kind of a skin?" For Chase Manhattan, however, the big question was: "What kind of inside?" The answer directly determined the striking façade with its enormous (3' x 5') projecting columns. It also directly determined the unbroken tower form above ground and the inclusion of the plaza.

The aim was to get fully flexible office space—that is, both continuously flowing space and space unimpeded by columns. With such space, the placement, expansion and moving of departments can be handled with almost complete freedom. All partitioning can be done with only four standard components (one each of opaque, translucent, transparent and door units) instead of the dozen different units required when columns must be taken into account. Lights can go wherever needed, again without reference to columns. And office machines of the future will not turn out to be awkward surprises to the layout planners; this last point is especially important to an enterprise such as Chase, whose spokesman comments that the mechanics of banking are changing so rapidly "we have no idea what kind of machines we will be using in ten years, what they will look like, what space they will take. So this flexibility, with almost no columns, is right down our alley."

All these advantages weigh little with the speculative builder or the nonresident investor in office buildings because their tenants, not they, are the ones burdened with the cost, trouble and inefficiencies of space interruptions. But to owner-occupants these matters are dollars and cents, to be considered sensibly from the start. This has been a major consideration in SOM office planning for such clients. (See plans above.)

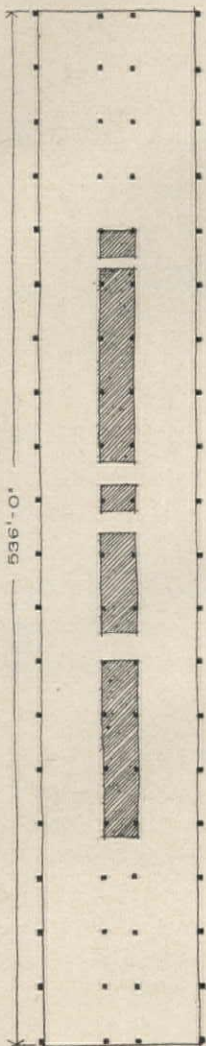
For the Chase project, flexibility presented some especially difficult problems. The desideratum of big floors conflicted with the New York zoning rule that a tower of unlimited height may occupy no more than 25% of the land; and even if it had filled the zoning envelope of one full block, Chase would still have had to top it with a tower to get the space it needed. The desideratum of columnfree space came up against the necessarily great height of the building, and the massive steel this implied for big spans. Chase wanted to be shown that the first as well as future cost of a flexible floor scheme, under these circumstances, could be justified.

Thus all the various possibilities were studied for developing the two blocks of the site separately, or developing one alone. Against these the plaza scheme was compared, and it was decided on only when the most economical solution proved to be the development of a single massive tower that would occupy 30%

of the combined site above grade, plus almost the whole site below grade. All other advantages of the 2½-acre plaza were left out of consideration at this stage. The city agreed to 30% unlimited height coverage, in return for no building elsewhere above plaza level.

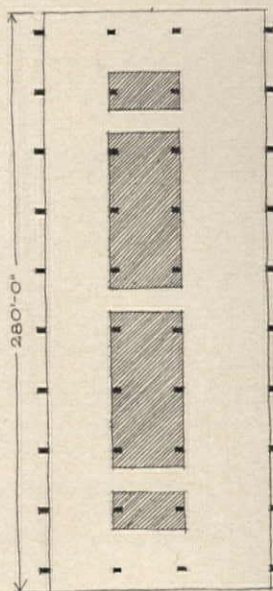
Once the tower was settled on, Chase wanted the big spans (45' on the deep, clerical-space side of the off-center core) proved out economically. Floor layout comparisons (sample at right) showed that the scheme with inside columns and conventional spans would result in a 6% loss of desks. Steel costs were compared. The scheme with conventional spans came out almost 5% cheaper, but balanced against usable space loss (or added cubage to recompense) there was no cost advantage to the conventional scheme—again leaving out of consideration all future-cost and finishing advantages of the columnfree scheme.

Total size of the building is 2,400,000 gross sq. ft., with 1,800,000 sq. ft. in the 60-story tower above ground, 600,000 sq. ft. below ground. Construction cost is \$94 million; site cost and development, including re-routing of utilities because of street closing, come to \$16 million; furniture and equipment, all new, \$11 million, for a total project cost of \$121 million. The space represents a 25-year projection of Chase's needs; in the beginning it will occupy two-thirds, rent out the rest.



FORD ADMINISTRATIVE CENTER,
DEARBORN, MICH.

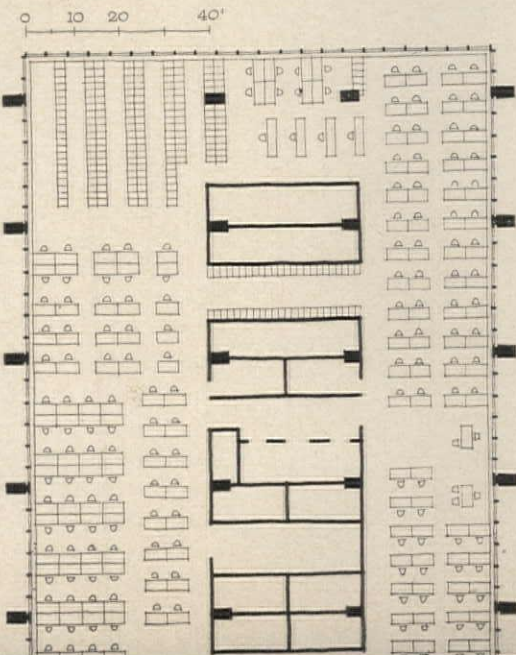
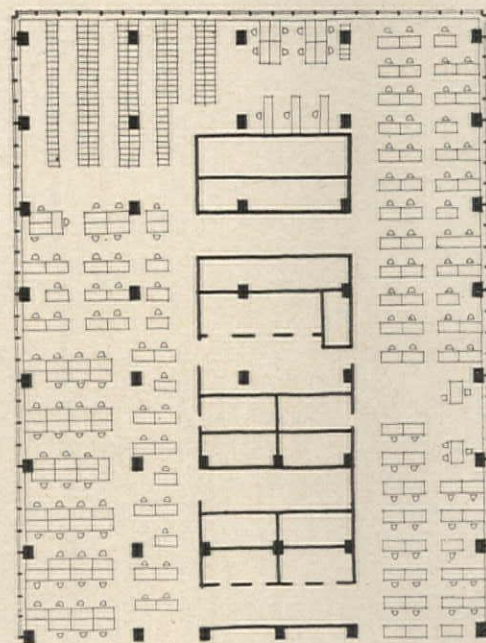
Floor plans of offices by Skidmore, Owings & Merrill show architects' principle of flexible space planning adapted to offset and central core schemes, to heights varying from a three-story portion of Connecticut General to the 60 stories of Chase Manhattan, to slab lengths varying from 170' for Inland Steel to 536' for Ford.



CHASE MANHATTAN, NEW YORK



Layout studies compare space yielded by almost-columnless Chase plan with that yielded by tower of same size with inside columns and 18' x 24' bays in the deep clerical space of the slab. Conventional scheme permitted 6% fewer desks. Layouts were for economic comparison of typical space needs; in actual office layout, files would not go in choice corner.

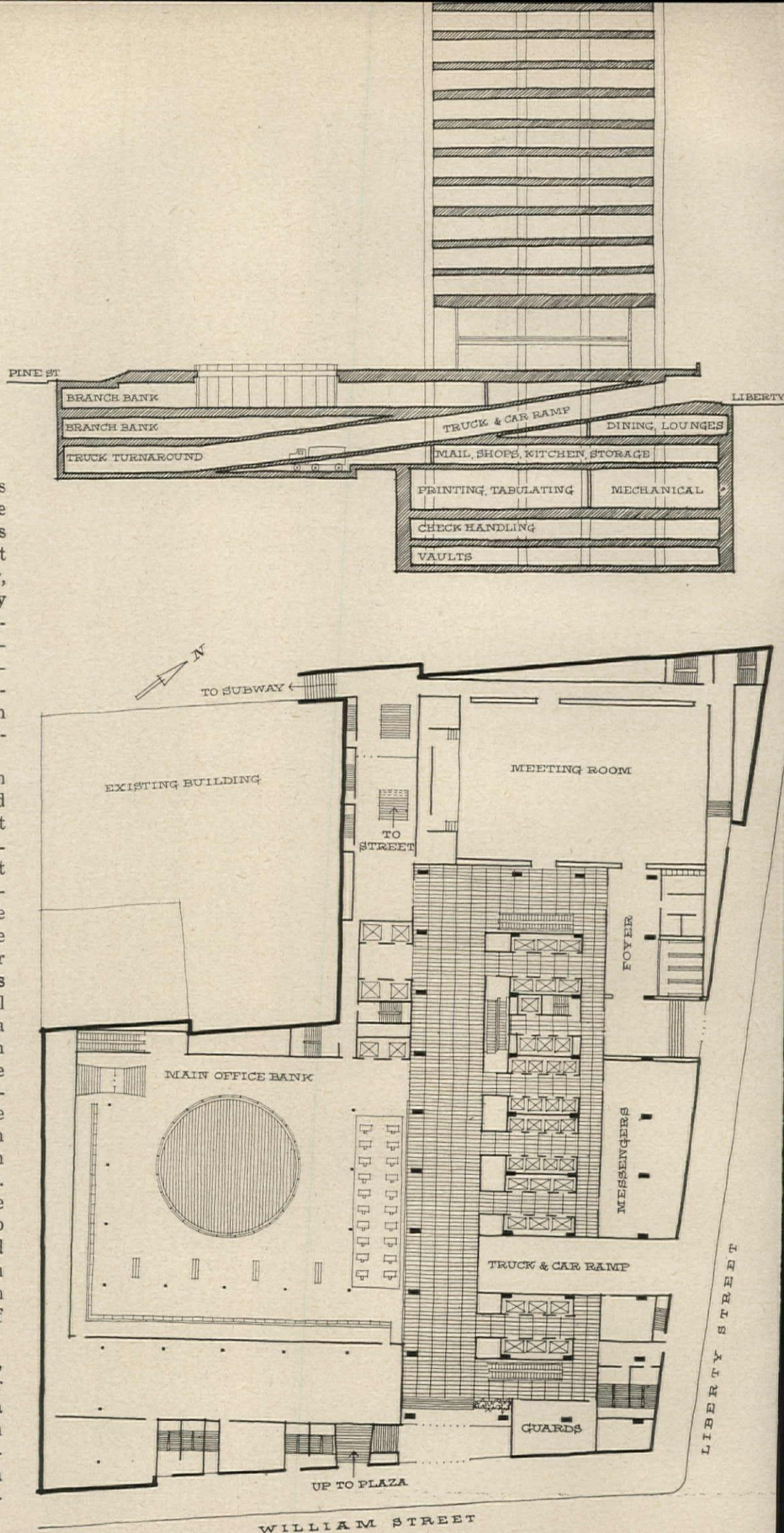


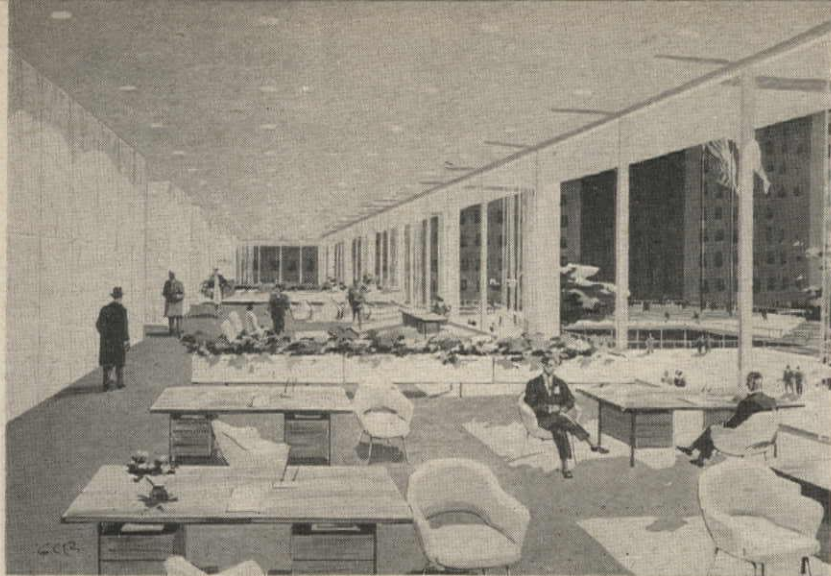
Chase sinks a show-window into its plaza

This banking headquarters, with its 10,000 employees, is mainly an office operation. But Chase Manhattan's directors understandably did not want their establishment to say, simply, "office building." They wanted it to say "bank" in no uncertain terms. This kind of thing—basically a question of symbolism—is a troublesome problem for contemporary architecture which is on generally uneasy terms with symbolism.

The architects solved the problem in a completely straightforward way: they put the operations that look like "bank" on conspicuous public view. This is not so simple as it sounds, however, because the obvious idea of putting a bank into the tower's lobby floor was out of the question; that space is all needed for circulation. Instead, when visitors to the plaza look down that focal circular hole, what they will see is a glass-walled view of a Chase branch bank. (When the tellers look out the walls, what *they* will see is a garden.) And when visitors look at the tower, they will see in the high lobby a glass-walled mezzanine with the familiar bank officers' platform. Since both the branch bank and the head office lending officers need to be accessible, this scheme proved functionally excellent. The branch bank concourse is entered from street level on one side, or down half a flight on the other.

As can be seen from the section, a great deal of building is under that plaza. Among other things is a "light-industry" level, where each morning's load of five tons of canceled checks will be processed in factorylike flow to meet an afternoon clearinghouse deadline.

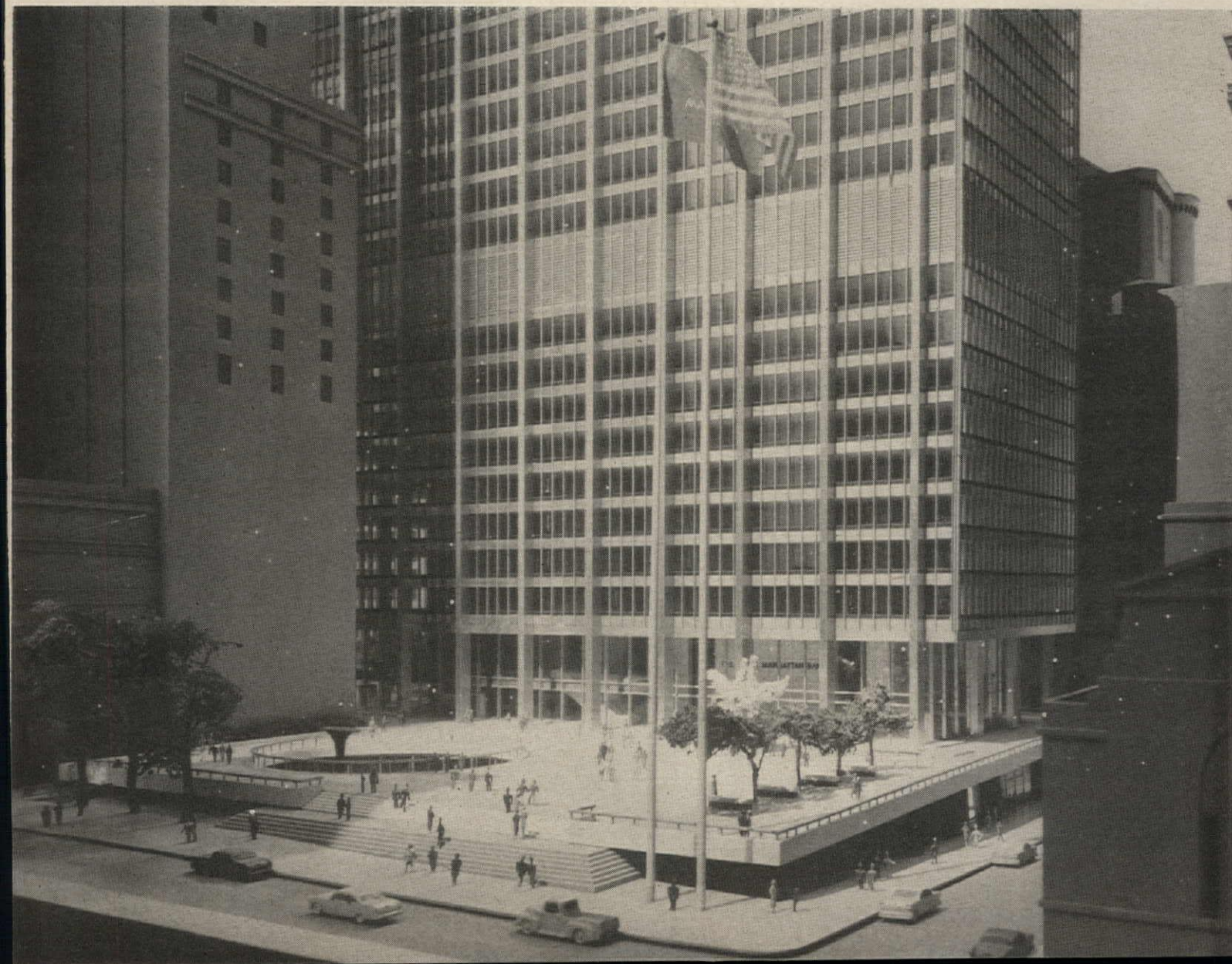


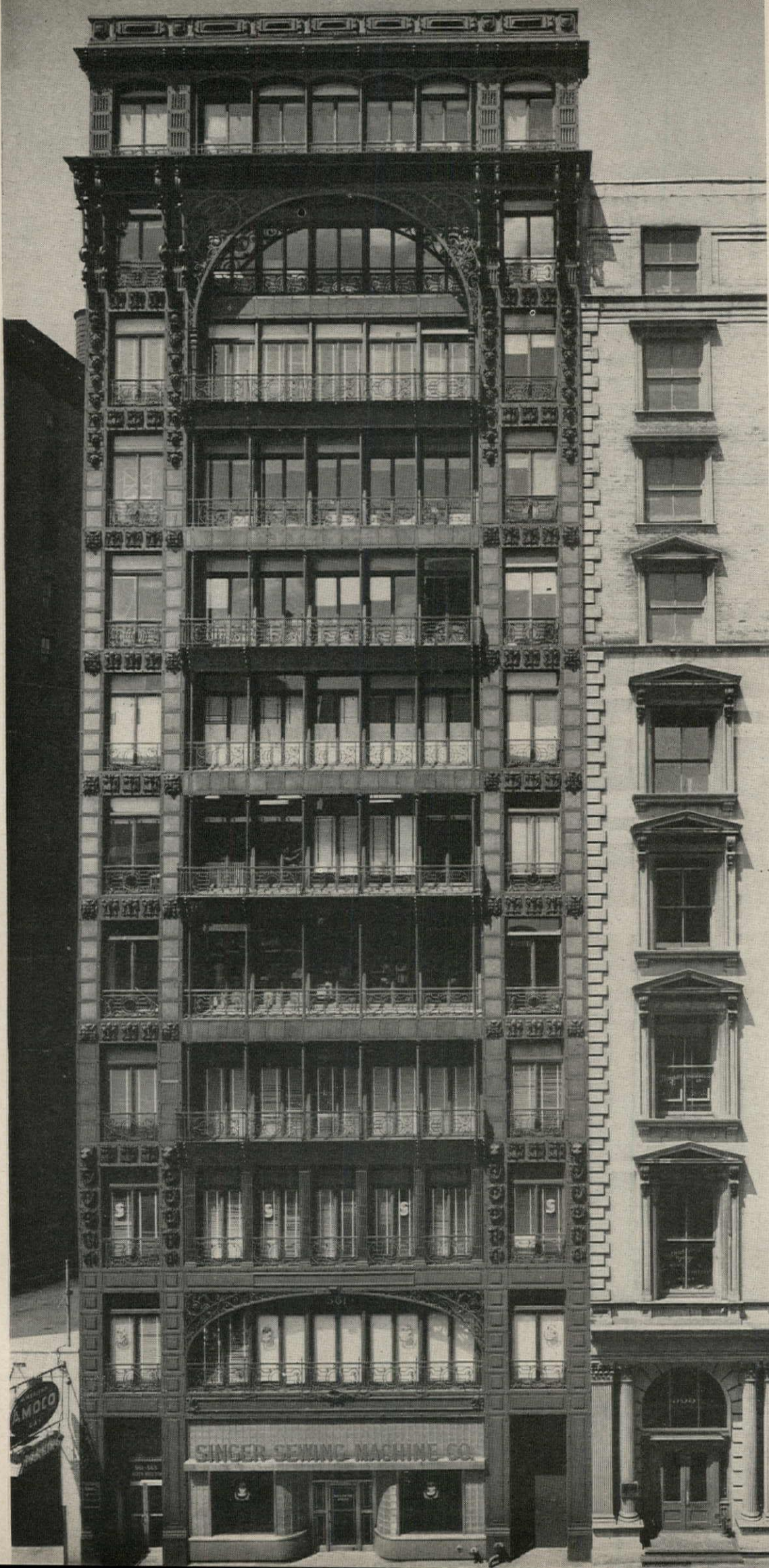


Bank officers' platform will occupy mezzanine in plaza lobby of tower; view at right shows lobby looking toward mezzanine; view above is from mezzanine. This scheme makes a clear statement to the public of the bank's function.

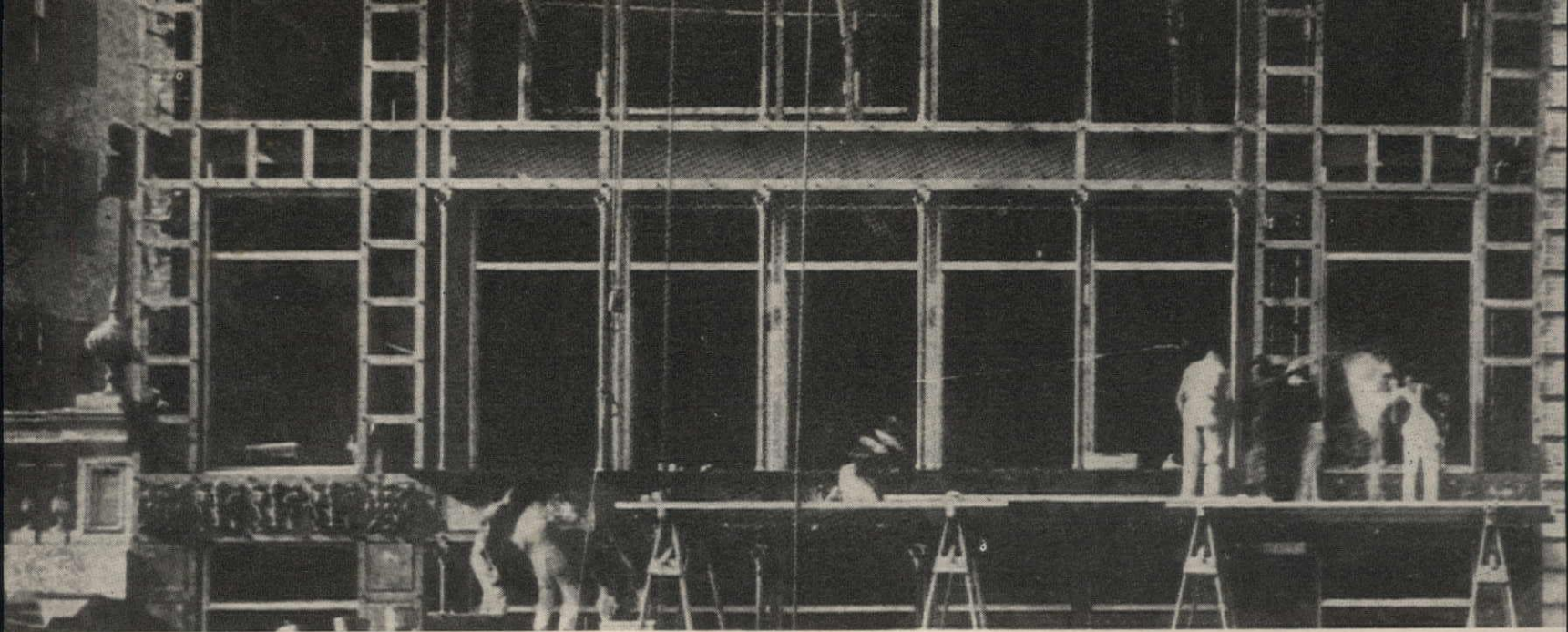


Plaza forms roof of ground floor (plan opp.). Circular opening is light well for branch bank and show-window for public. Concourse to bank and lower lobby of tower is entered from street level on east (right, in model photo below).





Curtain wall of the original Singer Building in downtown New York consists of tall glass doors topped by transoms. The steel skeleton lies behind the square terra-cotta panels, held by a metal grid.



Forgotten pioneering

Fully equipped, way back in 1904, with all-glass front, curtain wall and logical ornament, this 12-story office building set an example to the Singer Tower and remains instructive

It was discovered, a delightful surprise, by architects on a Sunday walk. Then Architect-Historian Alan Burnham dug out the story of this lost, remarkable building:

Writing in March of 1904, the editor of a leading architectural journal deplored the staleness of the ideas he saw expressed around him in New York's new buildings, much as the editors of FORUM wrote on the "dullness" of the scene in March '57. "The difficulty," he said, "is not to get speakers but to find somebody who has something of import to say" ⁽¹⁾. As flashes of hope he mentioned Louis Sullivan's Bayard Building of 1898 at 65 Bleecker St.—although he disparaged the use of masonry arches under the cornice to cover a steel skeleton—and the more recent Blair Building at the northwest corner of Broad St. and Exchange Pl., by Carrere & Hastings, which had a fenestration that was novel and free—although the architects had still toyed with an academic treatment of masonry surfaces.

A real ray of light had appeared, however, on the horizon. A new building was being erected by the Singer Sewing Machine Co. as a combined loft and showroom, by an architect named Ernest Flagg. "L"-shaped in plan, the building fronted on Broadway (Nos. 561-3) and also on Prince St. (No. 88). Here, as one brochure put it, "... all the lofts are exceptionally light, as the entire fronts, both on Broadway and on Prince St., are

practically all glass and there is, in addition, ample provision for light from the rear of the building" ⁽²⁾.

It may amuse us today to hear of this tiny 12-story structure referred to as a skyscraper, but our editor called it such when he said "... no other architect has ever so frankly accepted the situation which the skyscraper presents and submitted it to such brainwork." He continues his praise in expressing the novel idea that "... the architect has clearly endeavored to permit the structure to design itself, confining his own role as much as possible to making the structural features as good looking as lay in his power. His problem, as he understood it, was to protect a steel frame ... and to let the building tell its own story as agreeably as it might" ⁽¹⁾.

The building still stands in excellent condition, the only changes being a store-front modernization with glass block on the Broadway frontage, and removal of the roof cresting.

At each front an immense glass area completely fills the frame. The glass is held in continuous rows of windows, or, more accurately speaking, French glass doors, under glass transoms that reach to the ceiling (most of the transoms having later been painted). In the wide central bay of each front this fenestration is recessed behind shallow balconies with wrought-iron railings and delicate iron posts.

It is the small amount of masonry covering the steel



Head-to-toe glass opens up the office floors of the 53-year-old building in the best contemporary manner. The glass transoms above the French doors have been painted.

Fanciful wrought iron decoration of the 12-story building is quite logical, for it is nowhere confused with the structure.



skeleton, however, that especially engages us, for the skeleton is sheathed not only with brick but with an outer protective layer of terra-cotta panels; and these escape every connotation of self-supporting masonry, being held in place by a latticework of steel straps with angle bars at the corners. Since the skeleton was sheathed already in brick, this outer layer took the place of the usual limestone veneer so popular at this date. In this sense our structure didn't represent any very radical departure from known construction methods, but the important thing was the lesson inherent in such a combination of steel, glass and terra-cotta. Have we not here the basic elements of today's curtain wall in which a structural steel system carries a system of subordinate steel or aluminum supports which, in turn, carry one or another kind of panels? In this case the panels were of terra-cotta, but the lesson of what could be done stood there, on Broadway, fully exposed for all to see.

We are, of course, forced to ask why Flagg did not use this novel and light constructional system on the Singer Tower three years later. The answer lay in his French training, which, as we shall see, required that he at least reflect the use of materials in an older building below. Only the balconies, and the large glass area, of the Tower reflect this brilliant achievement of 1904.

Equally fascinating is the question why the kind of protection given to the big glass, against both sun and weather, by Flagg's exquisite treillage of balconies and posts, has not been repeated more often in the history of architecture. Apparently an architect such as Flagg achieved this kind of "sunshading" without boasting about it. Yet when we compare this design with the assertive sunshade schemes of today, the troublesome reflection occurs that this example of 1904 is very much more elegant. Not only is it rich in its subtle play of forms, materials, planes and shadows, but Flagg commands an art, which has been foresworn by modern architecture, in finding a use, which is as logical as it is delightful, for the exuberant application of ornament.



Singer Tower, still among the
slimmest, pioneered the modern
concept of city zoning

"Prince Sidkyong Tulku, heir apparent to the Maharajah of Sikkim, a Tibetan principality, who is here for a fortnight, . . . relaxed a bit yesterday and became a trifle more communicative . . . but at that he didn't talk much. Perhaps his longest speech was made after a visit to the Singer Building* in reply to a question as to what he thought of its height.

"'Your building isn't really high,' responded the Prince. 'In my country there is a mountain 29,000' high rising at my feet. It is Mount Everest. I must do honor, though, to the brains that conceived and erected such a business building'" (3).

Although the excitement of great height is long since past, and the Singer Building was destined to be the tallest in the world for only 18 months, after which it was eclipsed by the Metropolitan "campanile," it has a slenderness ratio of one in seven, which may very well hold the record even today among skyscrapers.

The architectural quality of the tower is what now chiefly interests us. The question may fairly be asked why the Tower is so much less "pure" and self-consistent in its appearance than the earlier 12-story building for Singer by the same architect (p. 116). A look at a contemporary rendering, and at a 1907 construction picture (next page), suggests the answer.

Unlike later tower buildings such as the Woolworth or the Empire State, the Singer Building was not carried out in a single operation. Its present base represents the interconnection and harmonization of no fewer than four buildings or building extensions, varying in their original height and treatment, starting with an original Singer structure of 1898, only ten stories high, at the northwest corner of Broadway and Liberty St. Accordingly the master plan which the Singer company commissioned of Flagg in 1906, during an era of corporate prosperity and expansion, was a combination of renewal with new construction.

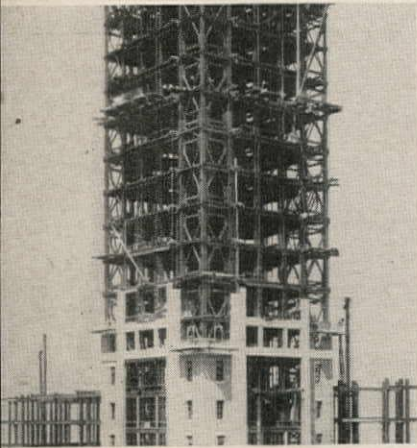
Perhaps it was Flagg's thorough training in the principles of coherence and consistency of design as taught in the French Beaux-Arts which led him to sheathe his tower with brick and limestone to agree, in color, texture, and roof form, with the building below.

Whether we today like the design of the Singer Building or not it must be conceded that the tower, at least, represents a very coherent, virile piece of design with its strong verticals, bound together by horizontal band courses at different levels, culminating in an efflorescence of limestone balconies, dormers and arches, all capped by a series of metal hip roofs, crests and

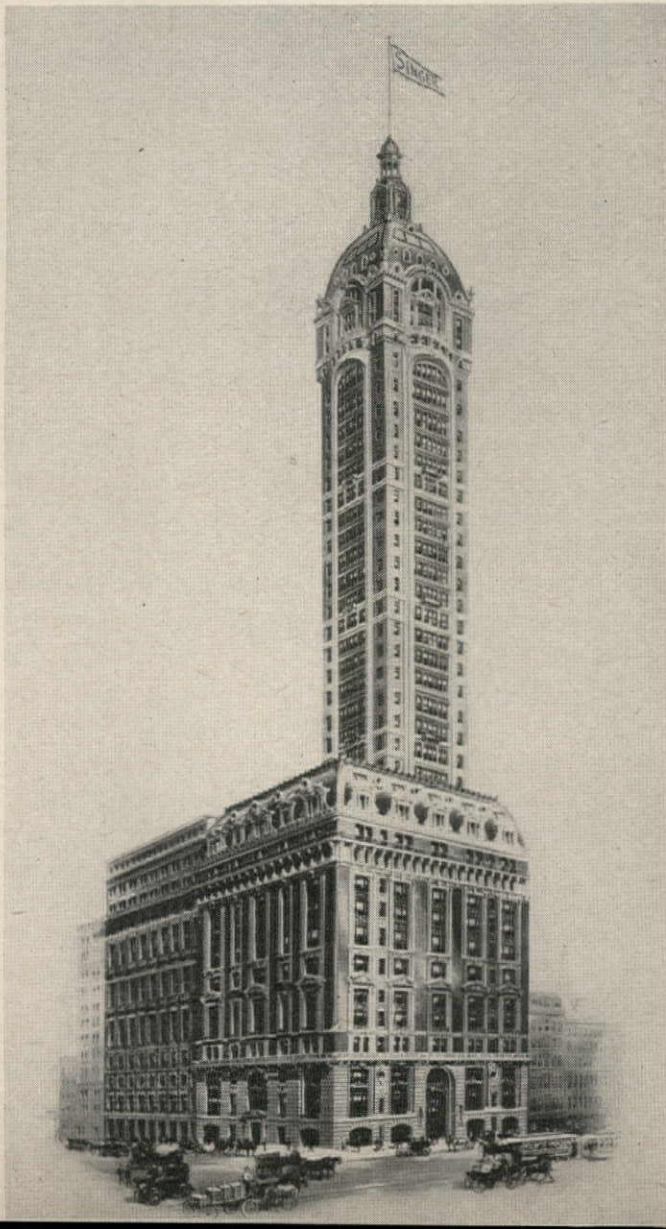
* Then recently completed.



Golden interior, in its original state, reflects the elegance of the period. Top of each vault is a glowing saucer of glass.



Wind bracing of the tower (two-story X's) explains the almost solid masonry at the corners. In between, the walls are almost entirely of glass. Limestone trim harmonizes with the base building which actually consists of four buildings, similarly harmonized.



slate, and finally, the towering "lantern" itself which is actually some 60' high.

The dramatic contrasts are superb. Moreover, the veneer of the tower certainly expresses its underlying structure, for, as the construction picture clearly shows, the two corner bays of each face received heavy "X" bracing, each brace extending through two floors, leaving room only for small windows there; but the three open center bays on each side are almost completely sheathed with steel and glass.

Entering the lobby of the Singer Building for the first time in the summer of 1908, one would have been immediately aware of a newness, a difference from the architectural interiors to which one had been accustomed. Here was something to think about: a twentieth-century feeling, an almost plastic flow of lines; rich, warm colored marble edged with crisp bronze profiles; columns flowing upward into ribs to carry pendentives which support great glowing saucers of glass; but above all the feeling of great elegance and height, a feeling which persists to this very day despite the diminished brightness, and remains a tribute to Ernest Flagg and the fact that he learned the underlying principles of good architecture without having returned, as so many did, their minds crammed with borrowed details from the Continent.

Finally, the Singer Building and its tower expressed Flagg's ideas for zoning the American city, in which he envisaged an array of freestanding towers. In an American architectural magazine in 1908, Flagg, distressed by our lack of city planning and the "... conversion of our streets into dismal ravines," put forward his scheme which finally received the official endorsement of the American Institute of Architects. A good many of its features were incorporated in New York's zoning ordinance of 1914, but Flagg's full proposals might have led to a far finer result. He suggested a 100' uniform building height along the street; the retention of light courts for a percentage of the site, and permission to erect a recessed tower on one-fourth of the lot, to heights limited only by the structural possibilities.

"Esthetic considerations, which will undoubtedly have more weight here in the future than they have had in the past, are set at defiance by present methods. Our street façades have a ragged, wild western appearance, more suitable to a half-civilized community than to a city which claims rank with the other great capitols of the world. ... Esthetic morality requires that our streets of the future have that sober, dignified and restrained aspect which comes of a uniform line"—punctuated by well-spaced towers ⁽⁴⁾.

(1) *A Rational Skyscraper*, by H. W. Desmond, *Architectural Record*, Vol. XV, No. 3, March 1904.

(2) *The New Singer Building*. (Unidentified one-page article in possession of Singer Sewing Machine Co. Undated.)

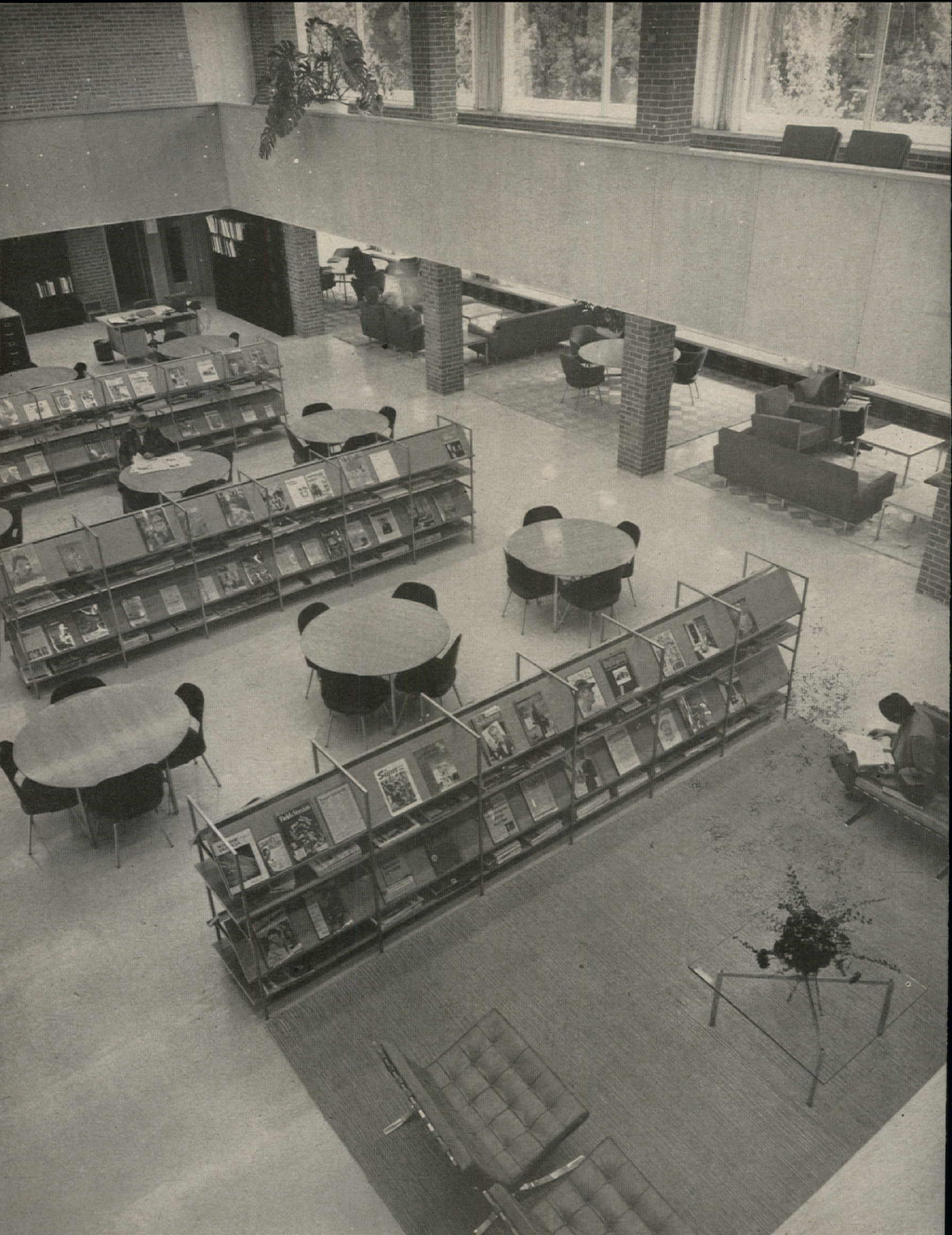
(3) *Skyscraper Really a Pigmy*, *New York Times*, July 19, 1908.

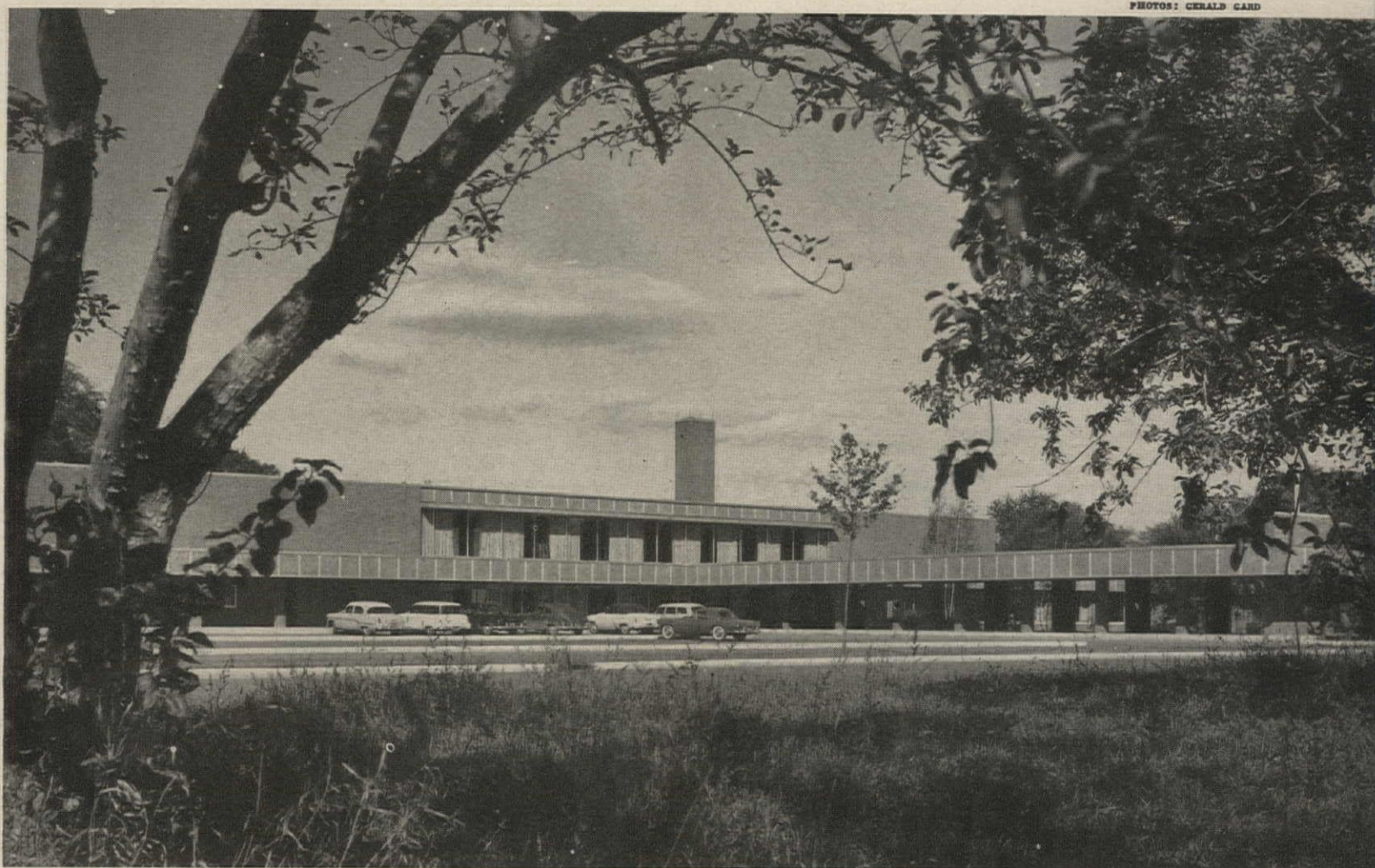
(4) *The Limitation of Height and Area of Buildings in New York*. By Ernest Flagg. *American Architect & Building News*, Vol. 932, No. 1686, April 15, 1908.

Singer's detailing (viewed here before removal of cresting and flagpole) contrasts with "commercial gothic" of Woolworth tower



Singer and Woolworth
Copyright





A small city library, blossomed into a rounded cultural center, pays joyful respect to civilization's treasures—including the art of architecture

An inviting space for culture

"Culture is a matter of awareness in the broadest sense," comments Architect Alden B. Dow, designer of this Midland, Mich. public library. "A library should be a center of awareness of recorded knowledge, music, motion pictures, scientific and artistic accomplishments in as many fields as possible."

A study of the excellent plans (overleaf) shows how well this aspiration has been served in terms of facilities. But the pictures tell the even more important conviction be-

hind the concept. This is aware architecture, practicing what it preaches about civilized values.

The building, designed for 100,000 volumes, is set squarely in the main residential area, replacing a 12,000-volume library downtown. There was some fear the new location would cut use, but circulation promptly increased 40%, has climbed steadily since. Evening use by teenagers is especially high.

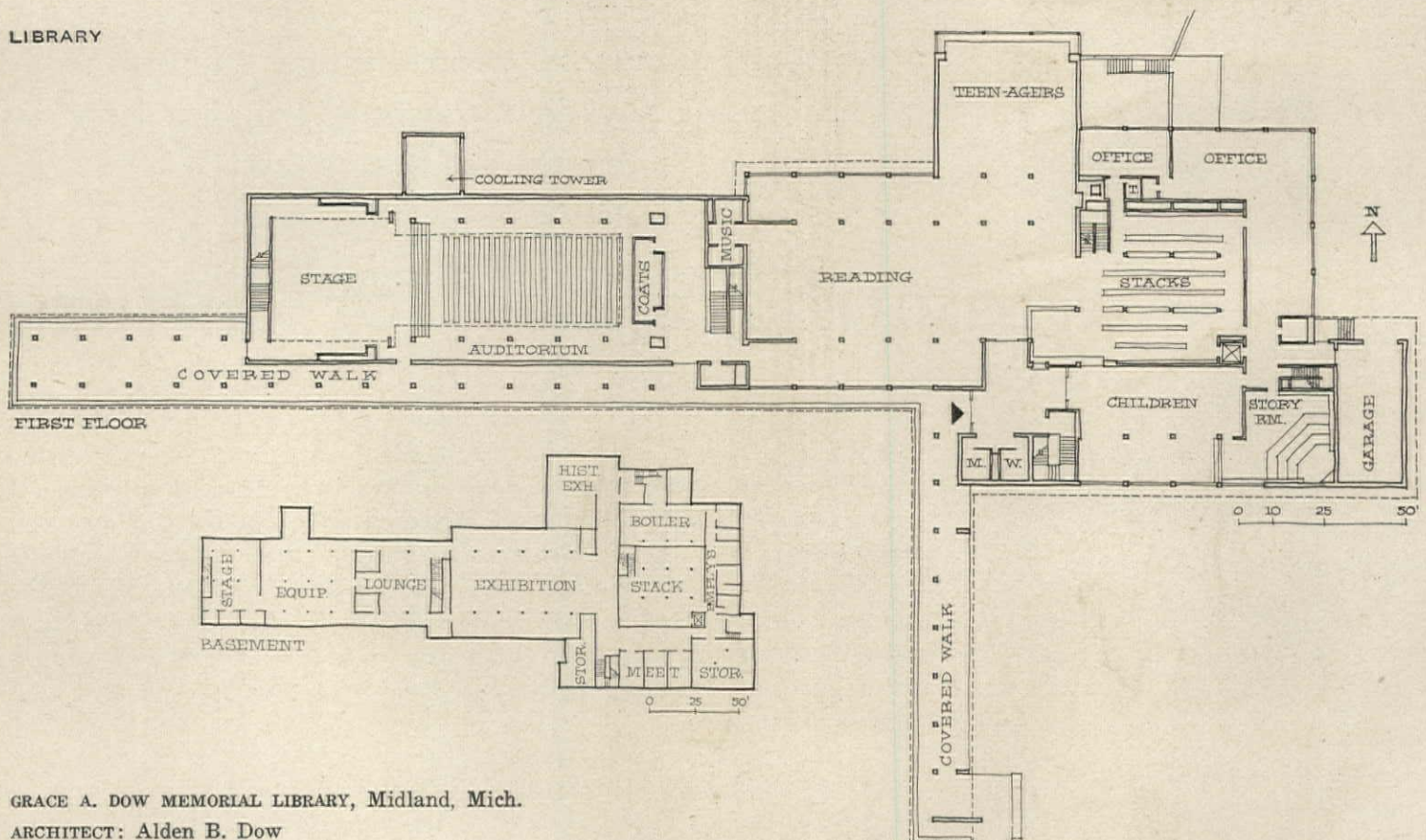
Cost, including stacks and fees, was \$1,024,588; \$15.07 per sq. ft.



Reading room for adults, with comfortable browsing areas, porchlike balcony, outlook to heavily wooded stream states with conviction that reading is a pleasure.



LIBRARY



GRACE A. DOW MEMORIAL LIBRARY, Midland, Mich.
 ARCHITECT: Alden B. Dow
 STRUCTURAL AND MECHANICAL ENGINEERS: Hyde & Bobbio
 GENERAL CONTRACTORS: Fred C. Trier Construction Co.



Panoramic view indicates how deftly contrasting ceiling heights are used. Adult reading is to the left; lobby off foyer, the right foreground; teen-agers' reading, to the rear.

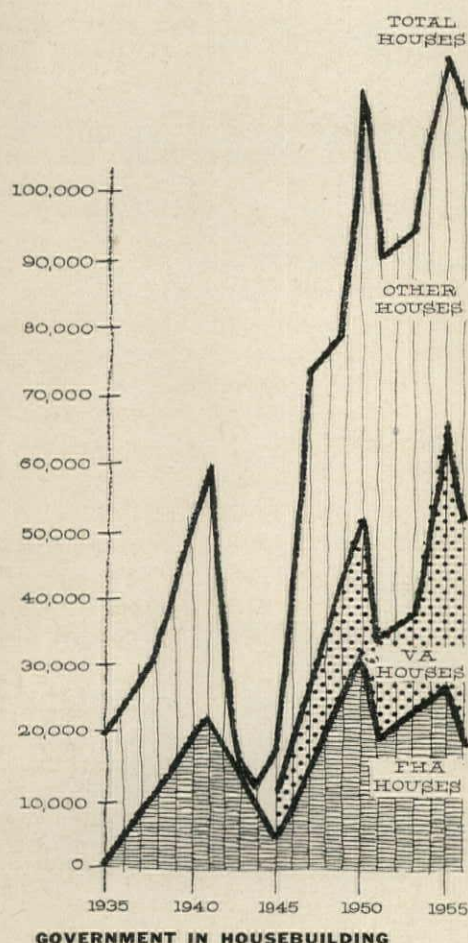


Young users are splendidly provided for with step-seating story room, left; children's reading area, below; and teen-agers' browsing room, right.

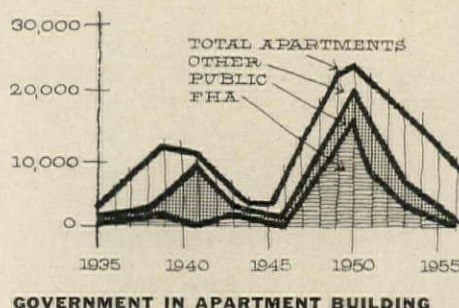


Our confused

Twenty-five-years old, crippled by contradictions, today's federal housing policy cannot serve today's cities. Needed: re-examination of the total problem



Federal influence on housebuilding (left) has been strong, particularly in postwar years. Apartment building (below) is even more dependent on federal programs, but at considerably lower volume. The postwar federal concentration on housebuilding has not only sparked the suburban building boom, but it has revolutionized the rental market: only 40% of all families are renters today, compared to 56% in 1940.



Next month: Catherine Bauer will re-examine public housing in the light of her long, close connection with it.

Conceived in a crisis of depression, the federal government's housing and building programs today stand squarely in the midst of another crisis—a crisis of prosperity.

In over-all terms, the postwar period has been the most prosperous in the nation's history. But it is a prosperity with challenging paradoxes. Despite the tremendous growth in output, employment and national wealth, there are economic and geographic areas that prosperity has by-passed. Despite the building boom that has been a trademark of this prosperity, there is still a major housing problem. It is centered in our cities, but in many areas—rural nonfarm areas particularly—the problem is equally acute. In our cities, the slums that are a heritage of the building booms of the 1890s and the first quarter of this century are still a sorrowful negation of prosperity.

Now, large-scale plans have been formulated and undertaken for the erasure of these slums and the rebuilding of our cities. The key element in these plans, the agency that more than any other has the power and the money to make them work, is the federal government. In its pivotal role, as a regulator of mortgage credit, as a planning agency, as a source of funds, a clearing house of information, and in its own building activities, the federal government is in a position to supply the sort of leadership that could make the coming decades ones of achievement on an unparalleled scale.

Facing this challenge of prosperity, and the mammoth job of leadership in urban renewal, the federal program is transfixed by a fear psychosis that is currently offsetting all other factors favoring dynamic action. Urban renewal is dragging at so slow a pace that some planners are already despairing of even keeping pace with growth of new blight.

This paralysis is mainly the result

housing program

of two factors: a hangover from the FHA "scandals" of three years ago; and a deep-rooted insecurity growing from the fact that no one knows where the federal housing program is—or should be—going.

The latter is the more fundamental of the two. It arises from the fact that our federal housing program, as well as the agency which administers it, just grew, not just like Topsy, but like a Topsy with a dangerous hormone imbalance. Legislation and regulation have been added and subtracted in such profusion and confusion that today even the officials of the Housing & Home Finance Agency and its constituents aren't sure what they can do and what they can't. As a consequence, they usually can't.

The core of our basic housing legislation was drafted during the early Depression years. Most of it was designed to help fight the ravages of the business cycle, and the New Deal at that time was so occupied with boosting employment and prices that it never did find time to set housing policy apart from fiscal policy. One of the anomalies of housing's colorful history (see box, p. 129) is that the New Deal, which wrote whole new volumes into our social and economic history, never left a legacy of cohesive housing policy. Even in the face of the agonizing poverty of the early thirties, the New Deal found that what sociologists now call "ideological lag" stood between them and drastic action to meet housing needs. The early public works housing projects were more in the nature of experiments than anything else, and it wasn't until 1937, with the passage of the US Housing Act establishing low-income federal public housing, that a real program was initiated. Despite the needs, the social philosophy was still more attuned to Herbert Hoover, who, in 1931, had

said: "It is obviously not our purpose to set up the federal government in the building of homes."

World War II brought a new series of demands on the federal housing apparatus, and new chunks of legislation were tacked on to the depression-forged frame. Winning the War, like Licking the Depression, had understandable priority over Getting a Consistent Housing Policy.

The postwar period, with its jarring population shifts and unjarring of wartime savings, brought a new crisis, and resulted in some more patchwork carpentry on the federal housing bureaucracy. Most important of these measures was the Veterans' Administration's mortgage guarantee program, which brought hitherto unheard of easy credit terms to thousands of GIs.

In 1949, the first step was taken toward an urban renewal program, but even this was piecemeal. Title I of the 1949 act provided for slum clearance capital grants to cities, but it wasn't until five years later that Congress coupled with it a liberalized mortgage insurance program for urban rental housing.

Throughout its evolution, the federal housing program has simply grown in an *ad hoc* manner, taking each new crisis as it came, and gearing itself to that crisis. Today, instead of a sound, well-knit body of housing legislation and a functional administrative organization, there is little more than the odds and ends of crisis-inspired programs, held together by a few inadequately spliced lines of command.

A whole less than a sum

In World War II there was a wild multiplication of agencies that led to the first efforts to centralize the sprawling federal housing bureaucracy. Armed with the pre-emptory methods of war, the administration

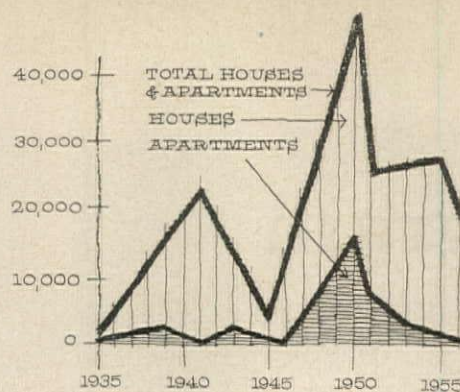
slapped together the National Housing Agency. This agency, with the help of wartime controls, tended the sharply cutback private housing program during the war and directed a limited federal building program tied strictly to war needs.

In 1947, the Housing & Home Finance Agency was created to take over all nonfarm housing programs.

Like the laws and regulations it administers, HHFA is a confused patchwork. The administration's responsibilities for supervision, administration and coordination of constituent units and agencies varies widely. The six units it attempts to coordinate are: the Federal Housing Administration, the Public Housing Administration, the Urban Renewal Administration, the Federal National Mortgage Assn. (Fanny May), the Community Facilities Administration, and the Federal Flood Indemnity Administration.

These agencies, their interrelationships and operations, are a classic example of the whole being something less than the sum of its parts. HHFA has direct responsibility for the operations of four of them—the latter four—and has no direct authority over the first two, FHA and PHA. The heads of both of these units are picked by the President, just as is the HHFA chief, Albert M. Cole, who in turn chooses the men to run the other four agencies.

This setup results in a practical tangle that bothers Cole perhaps most of all. "It's the worst situation in the world," he says, "when you've got responsibility without authority." Cole agrees with the President's Advisory Committee of 1953 that HHFA should be solely a coordinating agency, without any operating responsibilities. He cannot direct PHA and FHA now, can only use jawbone tactics with them. Thus he is uncomfortable with a program for which he is answerable but over-



FHA programs: apartment building aided by mortgage insurance has been minor relative to housebuilding, except for Section 608 activity in 1947 to 1950.

which he feels he has no control.

This lack of control is aggravated by fundamentally different attitudes that are bound to be taken by the various administrators, particularly in FHA and PHA. The former is attuned to business and fiscal considerations and concerned with "the insurability of the risk." The latter is likely to be most interested in public welfare, large-scale architectural planning, and to be something of a reformer.

A big problem in this organizational snarl is that Congress evidently feels the arrangement is fine. "Cole has all the authority he needs—if he'll only use it," snaps one top housing figure on Capitol Hill. Until Congress realizes the HHFA administrator doesn't have the authority, the present chaos will continue.

In the many tangles that have recently arisen between FHA and URA over urban renewal projects, Cole has found himself more in the position of a directly involved party than a mediator. A recent mix-up illustrates this. Not long ago, FHA decided that it had misinterpreted congressional amendment of its regulation on high-cost allowances for urban renewal (Sec. 220) rental projects. It decided that some rather hazy congressional language was not so hazy after all, and thereby nearly stymied a multimillion dollar project in Washington, D.C.

Not only were builders baffled by FHA's about-face, but so was Congress. Rather than agree that the language was ambiguous, and permit the projects to proceed, FHA demanded that Congress itself amend the amendment. (Once the new wording was worked out, however, FHA did agree to go ahead on the assumption that it would be passed.)

This amended language for high-cost units is now before Congress. Senator John J. Sparkman (D, Ala.) told Cole pointedly at hearings a few weeks ago: "We thought the

law provided for it [what you needed] already and you could carry it out administratively, but you would rather have legislative clearance."

In many cases involving anything more than the most routine, HHFA seemingly would prefer to have the "legislative clearance." Up until the past few months, URA and HHFA have stumbled along, fearful of making the kind of far-reaching decisions urban renewal frequently demands. FHA, still smarting from the 1954 scandals and unwilling to budge out of the shadow of "the letter of the law," has frequently monkey-wrenched an urban renewal proposal even after URA and HHFA had given all the necessary go-aheads from their end. And in these instances, HHFA has been powerless to clear the roadblocks. Most often, they have been hammered out of the way by tedious round tables of builders, government officials and each party's legal battery. On occasion, extra-legal means have been forged to override federal booby traps.

Those immortal ballads

To say that the federal housing-building program and HHFA have no direction or cohesion is not to say that they have had no impact on our land economy, our building industry and our real estate market. Nor is it to say that the program has been a flop. In terms of the volume of housing built, the program is extremely significant. Since its inception, FHA has insured nearly 3.5 million units of new non-farm housing and over 2 million of existing housing. VA, only in existence with a mortgage guarantee program since 1944, has insured an estimated 2 million starts. In the postwar years, FHA and VA programs combined have accounted for 31% of all privately financed non-farm starts, and in the record year

of 1955, insured over 50% of all starts.

The charts on p. 126 show how this volume of federally insured housing has waxed and waned—usually when money got tight—since the start of the mortgage insurance programs. More important, they show how federal programs have concentrated nearly 90% of their efforts on sales housing, with a minor interest in housing for rent.

Prior to the establishment of FHA, about 25% of all new housing built in the twenties was rental housing. Mortgage bonds on rental projects were considered among the bluest chips for investors. Not only were they first-rate speculative instruments, booming along with the fast rise in land values, but they usually afforded a handsome yield. Rental property in the twenties came near to being the perfect investment.

Today new rental building is only 6% of total starts. The percentage of all renter-occupied units has dropped from 52% in 1930 and 56% in 1940, to an all-time low of 40% last year. What happened to the perfect investment of the twenties?

Along with other perfect and not-so-perfect investments, rental property was dealt a paralyzing blow by the unsound financing practice then current and by the crash of values in 1929. But unlike most other investments, rental housing has never come back. One big reason is that Congress and the FHA haven't had any enthusiasm for rental housing.

Of all the new housing built under FHA programs, only 12% has been built for rent. And, most of this has been defense or emergency rental housing under titles of the Housing Act that were prompted by war or the postwar emergency. If you discount these emergency programs, rental housing built under the standard rental provisions of FHA has accounted for only 2% of all units.

This cold-shouldering of rental

building was begun back in 1931. At the intellectually significant but accomplishment-poor White House Conference on Housing, President Hoover made a strong pitch for finding means of getting better housing ("The great majority of the homes that are being built are not worthy of the American people") without direct federal assistance. But, at the same time, he cast renting into a shadow with such statements as: "I am confident that the sentiment for home ownership is so embedded in the American heart that millions of people who dwell in tenements, apartments and rented rows of solid brick have the aspiration for . . . their own homes. . . . Those immortal ballads, 'Home Sweet Home,' 'My Old Kentucky Home,' and 'The Little Grey Home in the West' were not written about tenements or apartments." This suspicion of rental housing is still embedded after 26 years, in FHA attitudes.

The fallacy of FHA

In building housing legislation, Congress has never seemed to understand the economics of rental housing. FHA, in devising its regulations, has often gone Congress one better and compounded this lack of understanding with a distrust of the workings of the rental market.

In 1934, Congress passed the National Housing Act establishing FHA, but it neglected to write into it a workable rental housing provision. Actually, it would have taken considerable legislative genius to spark the rental housing market via a mortgage insurance program in the early depression years. Investors didn't have the funds to back any volume of rental housing, and, if they had, it is doubtful that they would have had the courage to do it. The risks of rental investing were just too great—and the yields were no longer there.

About two years ago, Miles L. Co-

lean, economist and former FHA official, said: "The whole FHA rental housing experience . . . is a perfect example of missing the point. The main point is a very simple one; the problem of equity investment in rental property is not one of getting

the money in but of getting it out. . . . The fallacy of FHA rested on the assumptions that equity investment in rental property was somehow different from that in other risk enterprises and investors existed, if one could only find them, who

continued on p. 230

A quarter-century of federal influence on housing

Although the extension of federal influence into housing and real estate really started with the Great Depression, it has a sketchy prehistory. In 1892, for instance, the Secretary of Labor was authorized, after bitter congressional squabbling, to spend \$20,000 on a survey of housing conditions in cities of 200,000 or more. The survey showed four large cities with "bad" slum conditions, revealed a close correlation between saloons and the incidence of crime in those areas. During World War I, the first large-scale federal housing program was undertaken. Shipyard and other war workers were provided with dwellings under special programs. Most of this housing was sold to private interests just after the war.

When the Great Depression paralyzed the economy, the federal government began a steadily growing influence on housing:

DEPRESSION (1932-1939):

Outgoing President Herbert Hoover, in 1932, established the **Home Loan Bank Board**. Organized like Federal Reserve System, its 11 regional banks advance funds to members (mostly savings and loan associations) on first mortgages. (HLBB in 1955 became an independent agency, after being under HHFA.) A year later, the **National Industrial Recovery Act** provided funds for low-rent housing. Under this act and other public works appropriations, a total of 21,600 units of housing were built in 37 cities, plus 15,000 resettlement project units and 3,065 units in limited-dividend projects. Also in 1933, the **Home Owners Loan Corp.** was created to refinance home mortgages. Hitting a peak (21,000 employees in 458 offices) in 1934, HOLC spent over \$3.5 billion on over 1 million homes up to its dissolution in 1951. In 1934, the **National Housing Act**, cornerstone of most housing legislation, was passed, setting up the **Federal Housing Administration** and its mortgage insurance system. In 23 years, FHA has insured over 5 million new and existing homes (88% of them sales housing, 12% rental) for over

\$34 billion. In 1937, the **US Housing Authority** was established to provide loans, make contributions to local housing agencies for low-rent housing. Today, USHA's successor, **Public Housing Administration**, manages over 550,000 units of public housing. The **Federal National Mortgage Assn.** was created by a 1938 NHA amendment to provide a secondary market for government-insured mortgages.

WAR (1940-1945):

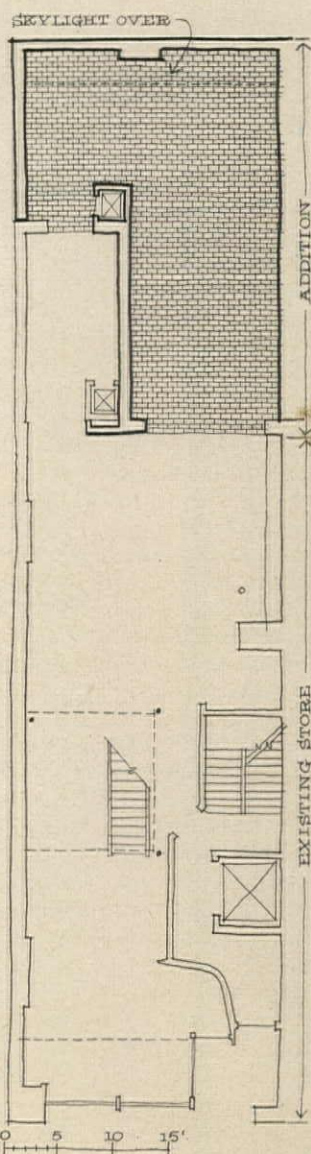
The basic war housing law was the **Lanham Act**, which eventually created 945,000 units (war and immediate postwar) of public housing. Defense housing was carried out under the **War and Navy Depts.** as well as the USHA. In 1941, **Title VI** of the **NHA** was written for liberal mortgage insurance under FHA for privately financed defense rental housing. In 1942, all nonfarm housing agencies were concentrated under the **National Housing Agency**. Two years later, the **Veterans Administration's** loan program was born with passage of the **Servicemen's Readjustment Act**, granting easy terms and government guarantees on GI home mortgages.

POSTWAR PROSPERITY (1946-1957):

In 1947, a permanent housing agency, the **Housing & Home Finance Agency**, was created to coordinate FHA, HLBB, FNMA and the public housing programs. A year later, **Section 213** of **NHA** was passed providing mortgage insurance on cooperative projects. In 1949, **Title I** of that year's housing act was passed, for grants and loans to cities for slum clearance. **Title VIII** (Wherry Act) of the same act created new authority for military and defense rental housing. In 1954, urban renewal was fleshed out by **Sections 220 and 221** of **NHA**, providing for mortgage insurance on approved slum clearance rental projects, and for relocation housing. In 1956, a plan for federal insurance of flood disaster area properties was started under HHFA.

Buildings in brief

A quick look at 12 new stores in and out of shopping centers which make significant points about the art of purveying goods or services



GLOWING SELF-EFFACEMENT FOR A GIFT SHOP

The trick, in this addition to Bonnier's high-style gift shop in New York, was to combine self-effacement with come-hither. The background had to be out of competition with the wares but it also had to lure customers rearward. So the utter simplicity of an existing brick wall was retained, but

given a glow. Part of the glow is real, from a wall-lighting skylight (and at night from lamps that do the same job). Part of it is illusion, the outdoorlike effect of light steel joists and tiles. Construction cost was \$16,000. Henry Hebeln, architect; Murphy & Brinkworth, Inc., contractor.





THURMAN C. SMITH

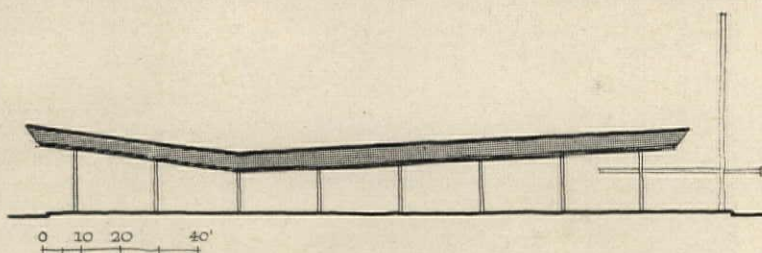
ZIGZAG EXPANSION FOR A SHOPPING STRIP

This calm and orderly strip of stores, with its blue, white, yellow and black pylon for an exclamation point, was built in three stages. The newest part, a three-bay-wide variety store, was finished this year. The

Shreveport, La. shopping center of which this forms a part was opened in 1941 and by the time this building was started it was clear a growing organism had better be provided for. The zigzags, while imposing

order, have adapted well to units of varying width and depth. Construction cost of addition, \$47,000 for 7,128 gross sq. ft. William B. Wiener & Assoc., architects; Werner Construction, contractor.

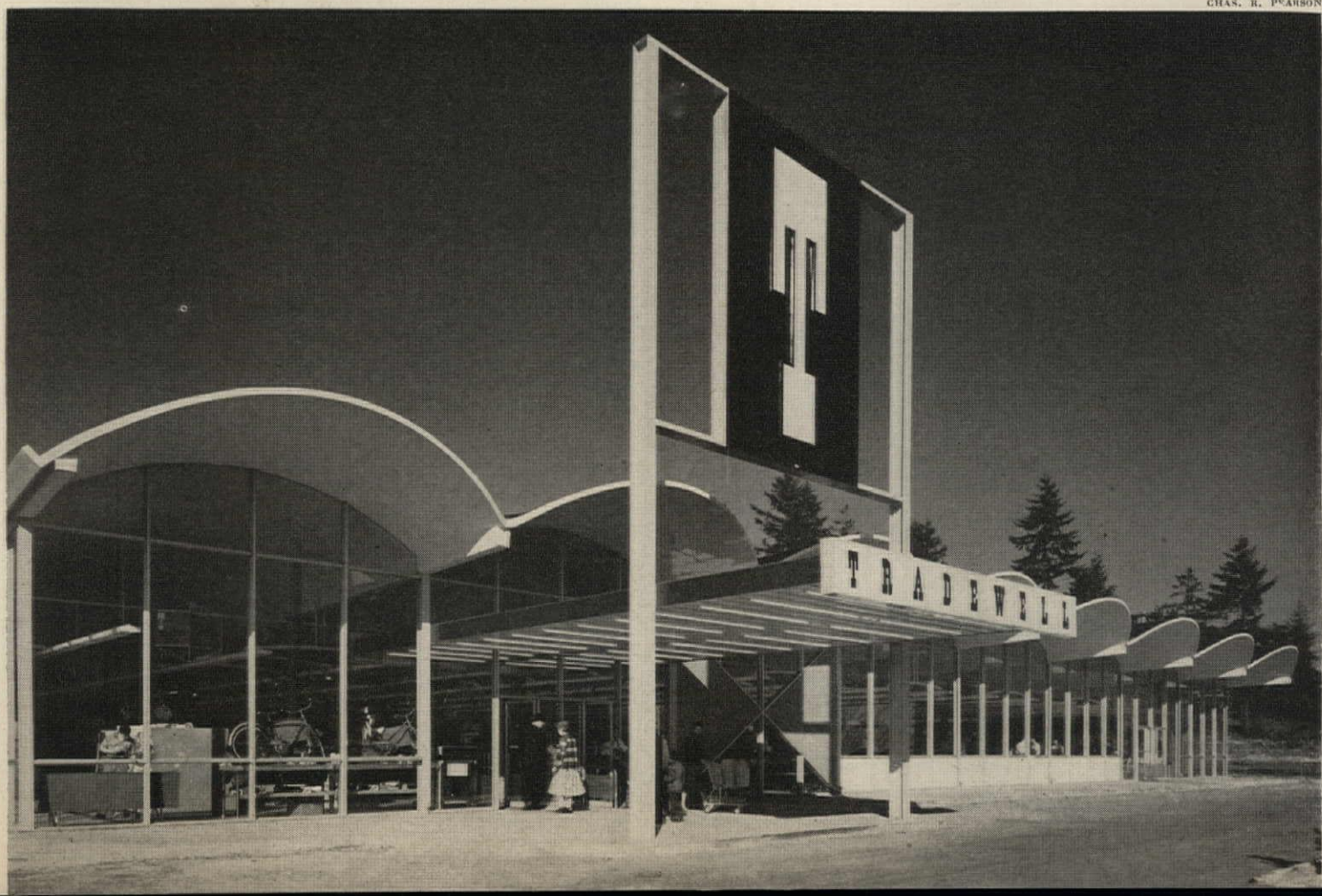
BUILT-IN TRADEMARK FOR A SUPERMARKET



The stock-in-trade of supermarkets is mass standardization, but the strong old urge to shout "I'm unique" nonetheless affects supermarkets too. The client for this one in Seattle got his desired chain identification in the handsome, economical and expandable form of concrete cylindrical

shells with a 12' front over-soar. The big blocky T will be the chain's all-purpose monogram. Construction cost was \$275,428 for 23,700 gross sq. ft., 15,700 sales sq. ft. Welton Becket & Assoc., architects; Rushmore & Woodman, supervising architect; Jentoft & Forbes, contractors.

CHAS. R. PEARSON





GAIETY FOR AN INDOOR SHOPPING MALL

The two-story indoor mall at Southdale shopping center (AF, Dec. '56), a refuge from rugged Minnesota weather, is also the focus of a wonderfully exuberant shopping scene. There is nothing monotonous about its shops, the besetting sin of most shopping centers. The six shown here were designed by Victor Gruen &

Assoc., who were also architects for the center. In the mall itself are spirited kiosks. The curved news and tobacco stand, above, has glass mosaic murals with porcelain enamel surround on both exterior walls. The sidewalk café, right, has a serving canopy of red and white canvas on a metal-capped wood frame.

PHOTOS: WARREN REYNOLDS, INFINITY INC.



CARNIVAL FOR TOYS

Fixtures here make the most out of the open front idea—the store itself as window display. Behind a circular toy cage is a carousel cash and wrap counter. Cost, including fixtures, \$43,863 for 3,065 sq. ft.

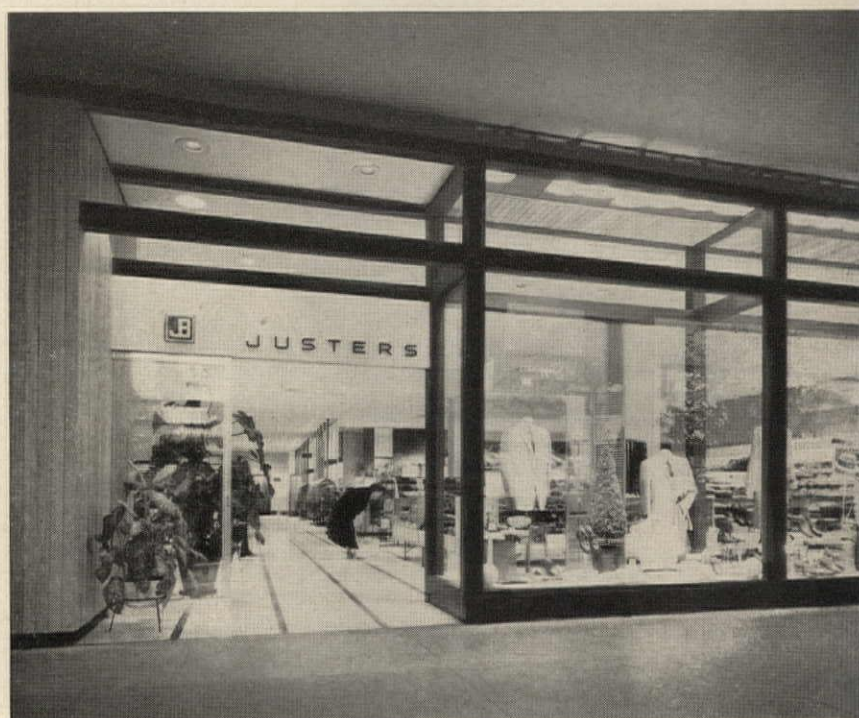
ORDER FOR ALBUMS

On a minimum budget, the obvious idea is to make the merchandise do the decoration, and that was planned for this record shop. But to avoid having this sound idea spawn the usual mess, a predetermined album display pattern was made for the glass wall. Cost, including fixtures, \$13,398 for 900 sq. ft. Contractor, Libbey & Libbey. Contractors for other Southdale shops here were Johnson, Drake & Piper.



VIRILE FRAME FOR MEN'S WEAR

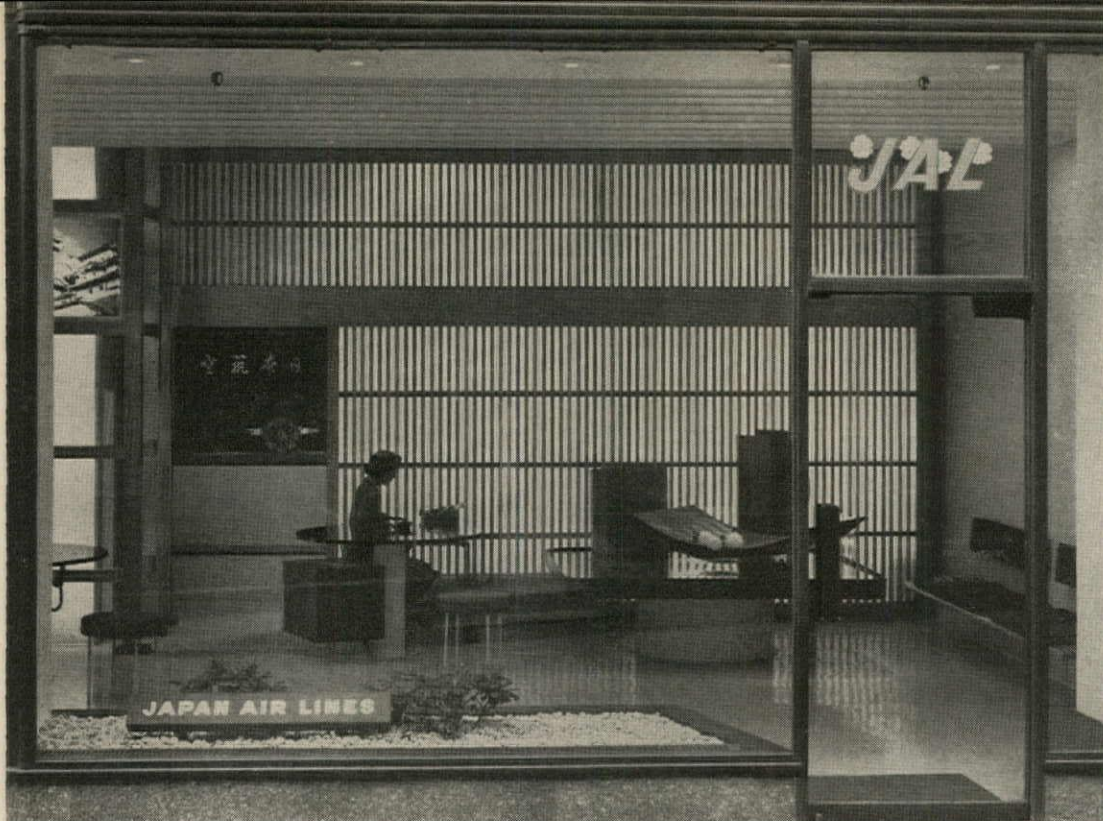
This handsome, masculine-looking wood front was also inexpensive because it fronts on the enclosed mall, could be built like partitioning. Note the open displays alluringly near the open entrance. Cost, including fixtures, \$129,183 for 12,136 sq. ft.



OPULENCE FOR A JEWELER

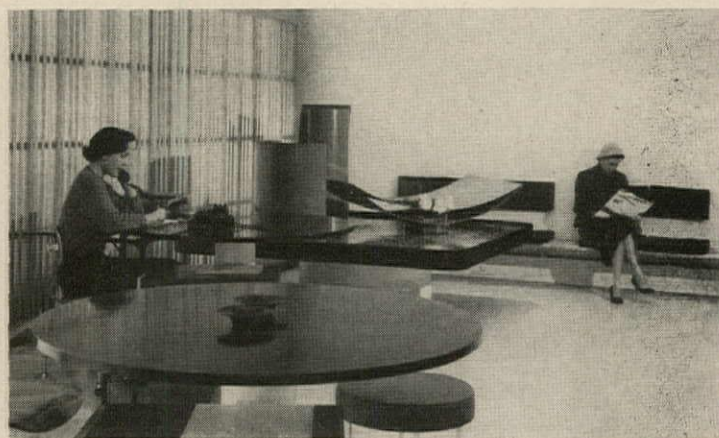
This top-drawer jewelry store is treated like a big, open-front jewel box. The equivalent of black velvet in this case is materials bespeaking elegance—marble, bronze, polished hard woods. The effect is rich, respectful but not oppressive. Cost, including fixtures, \$49,483 for 2,278 sq. ft.





SUSPENSIONS IN SPACE FOR AN AIRLINES OFFICE

Everything hovers, but not nervously, in this Japan Air Lines office on Rockefeller Center's promenade. Ceiling, screens, fountain, desks, signs—all appear to float lightly, elegantly and independently. While the design itself is thoroughly Japanese, every material and technique is American (plastic instead of rice paper and lacquer, walnut instead of hinoki wood). This reverses the common practice of using Japanese materials in Western context. Cost, about \$60,000 for 960 sq. ft. Raymond & Rado and Junzo Yoshimura, assoc. architects; Richter & Ratner, contractor.



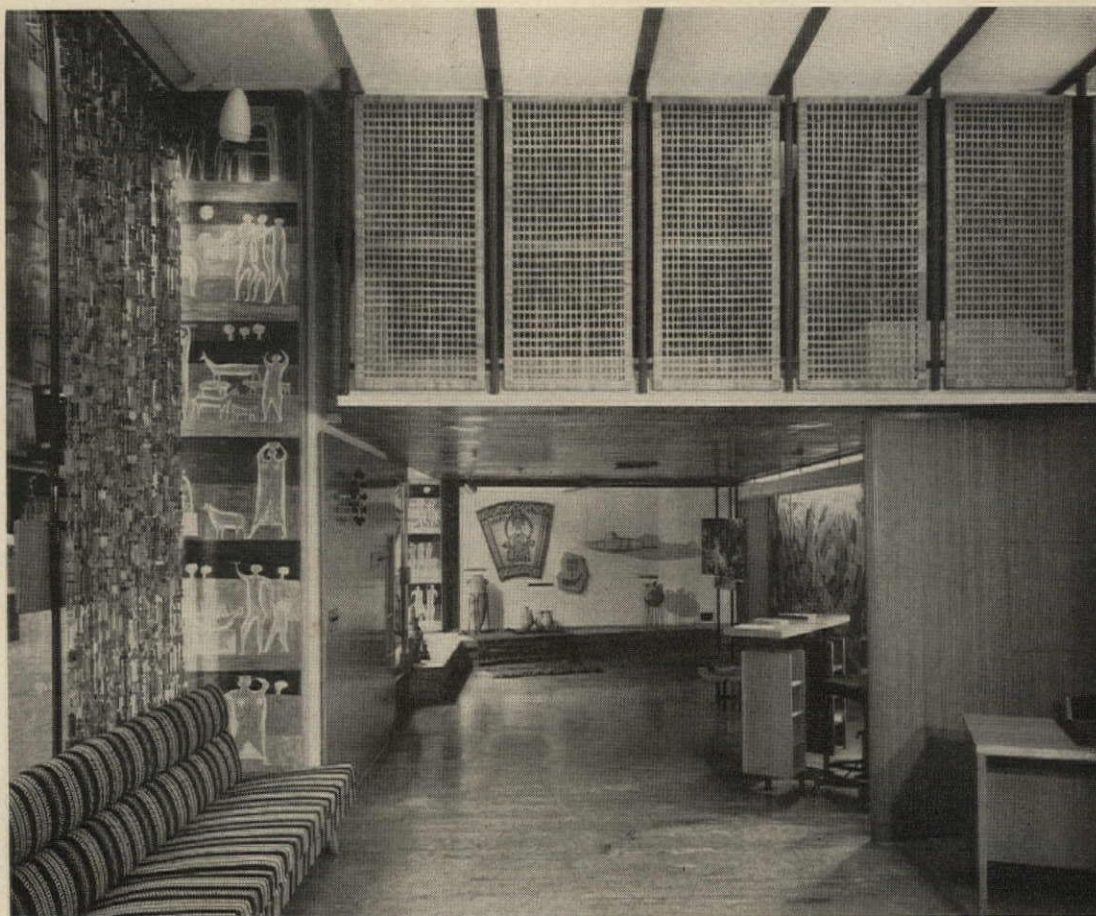
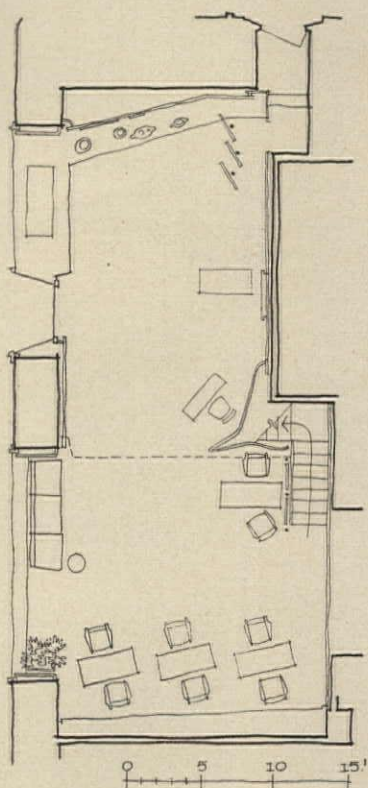
PHOTOS: (ABOVE) LENI ISELIN; (BELOW) BEN SCHNALL

EXURBIAN CHARM FOR A FLORIST SHOP

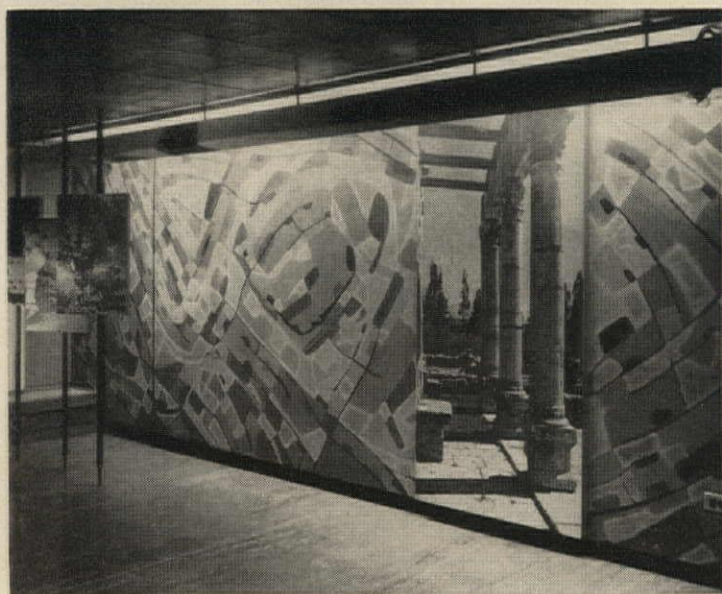
Out on the distant borderline between metropolitan orbit and countryside, people set great store by the rural and village flavor of the everyday scene. This remodeling job in Hopewell, N.J., pays the nicest respects to a no-nonsense old house, and also to the budget. Cost, including an apartment upstairs, three baths and a

fieldstone display porch, was \$17,000. The trellis shades a dilapidated and too-high ceiling; all details, including modular dimensioning, were calculated to prevent unrealistic demands on the local craftsmanship. Colors are white and warm brown. Norman Cherner Assoc., architect; Fred Reinau, Inc., contractor.





PHOTOS: (ABOVE & BELOW) BEN SCHNALL; (LEFT) EDWARD HAICLIFFE



LIVING MUSEUM FOR A TOURIST BOOKING OFFICE

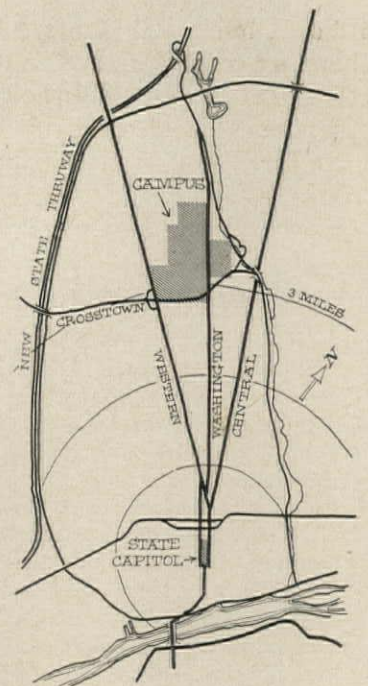
When El Al Israel Airlines and the Israel Tourist Office collaborated on this establishment (just across the promenade from Japan Air Lines, opp.), they seized the chance to show their native crafts, industry, materials and art. Virtually every item, including steel framing for the rattan mezzanine screen, wood ceiling dividers, the screen of suspended olive wood chunks

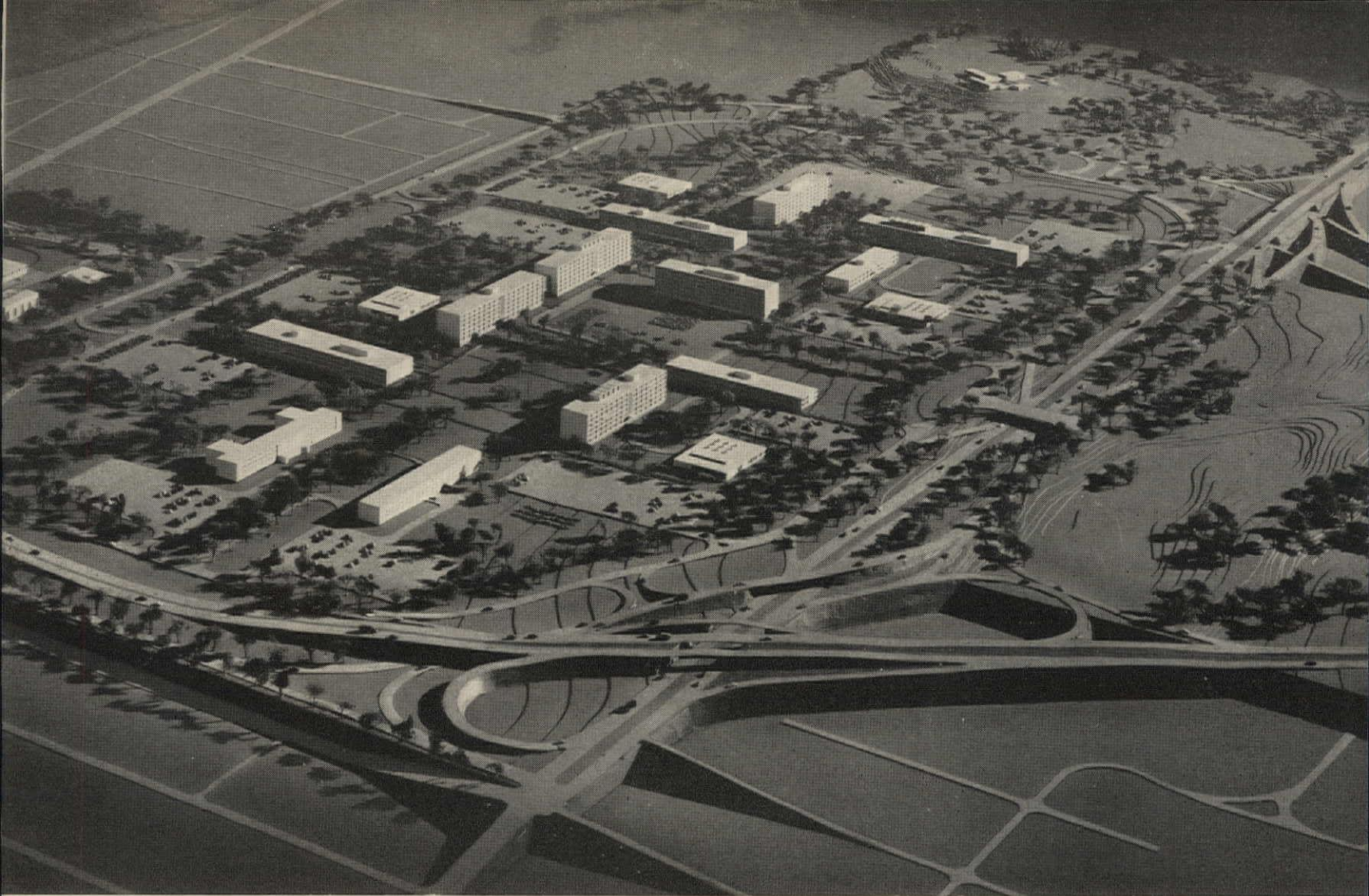
inspired by the Mediterranean bead curtain, the fabrics, even the flower pots, was fabricated in Israel. Despite some skepticism, everything fitted. Cost of furniture, materials and art was only \$8,000, but installation more than doubled this. D.&Y. Gad, architects and furniture design; Moshe Castel, Jean David, Zvi Gali-Motza and Perli Pelzig, murals; R.M. Ollinger, Inc., contractor.



It's only three miles from New York State's hulking downtown capitol to the new state office campus on the edge of Albany, but in architecture, economics, and amenities they are a world apart

WALTER SANDERS—LIFE





Lessons in campus building

Schools, industrial plants, hospitals, shopping centers and office building complexes may all benefit from studying this thoughtful campus plan for State of New York office buildings. All these different types of institutions are using campus plans, and for similar reasons: all have to anticipate future growth, which can be forecast but not with complete exactness.

Well known for their campus planning of stores and schools, Architects Ketchum, Gina & Sharp and Unger & Unger have here added some new ideas of interest for anyone with an open-end building program:

► Though only part will be built at a time—the master plan anticipates construction in five stages—the whole campus will look well and

work well at each stage. There is no need to wait 10 to 20 years for the plan to “fill out.”

► The trick: buildings are arranged in a series of open courts or malls, *not* tightly joined at the corners like old-fashioned college quadrangles. Standing in such a court the visitor is pleasantly surrounded by buildings, which frame a complete view. But the proprietor is left many choices in the future as to how he may “hook on” to the free building ends.

► A perimeter loop road, taking visitors off the main highways, will enclose the project in a parklike superblock with no through-traffic.

► Expanded step by step, the loop will be built without waste.

► Fifteen “front” entrances off this loop road—in place of a single con-

gested “main entrance”—will be gradually developed to assure easy traffic flow into the campus.

► Parking has some fine innovations. The loop road arrangement lets parking be divided among many small lots widely dispersed. And their placement off the corners of buildings, rather than broadside, leaves the majority of office windows looking down on trees and lawn, not cars.

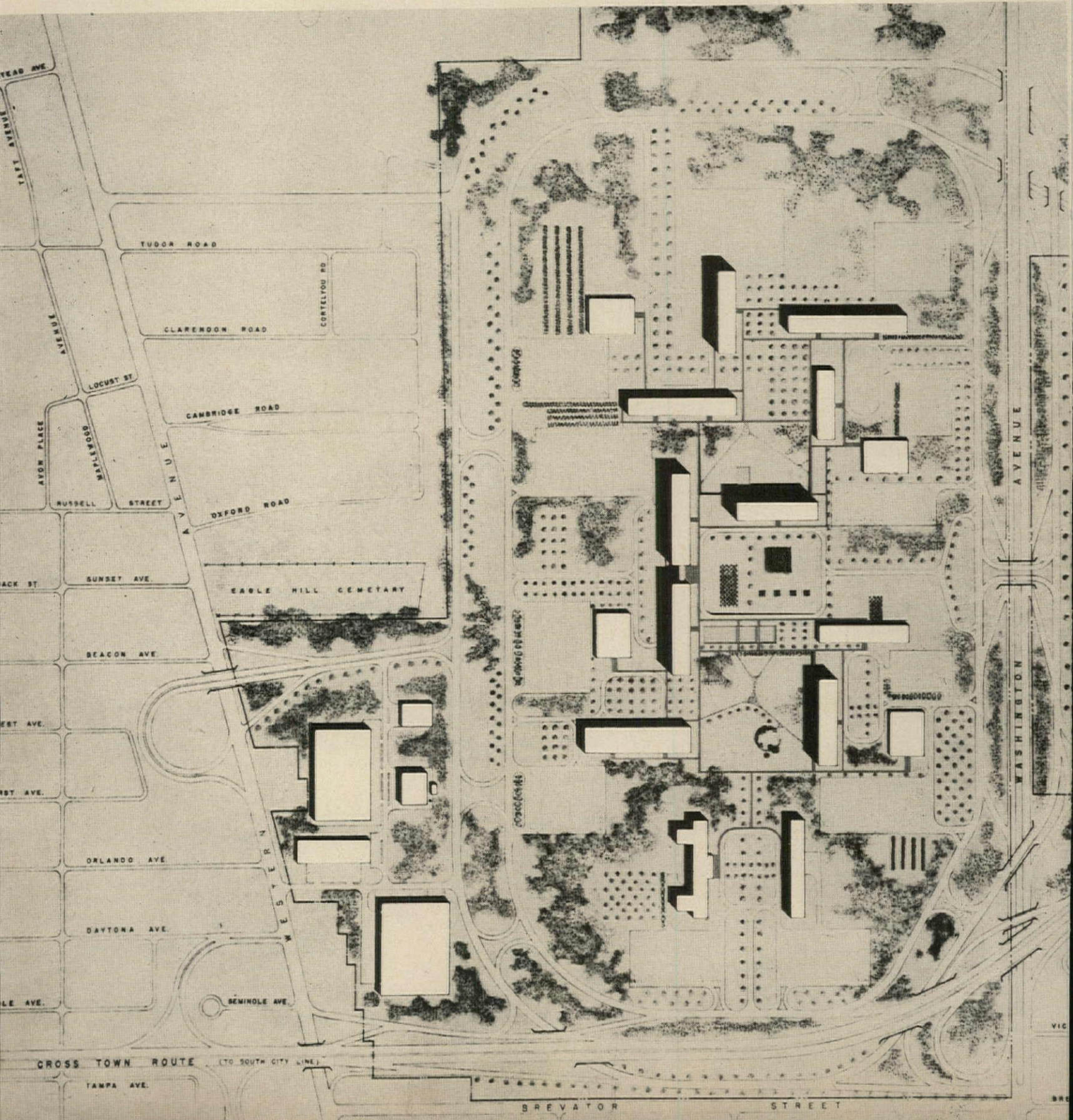
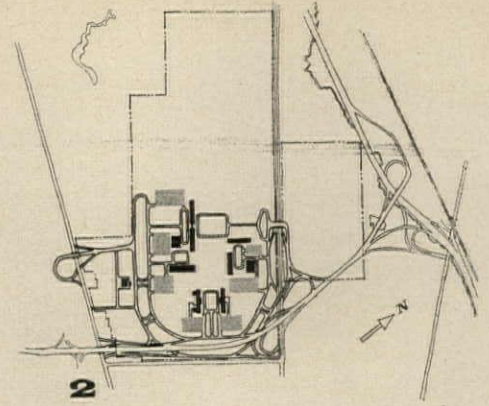
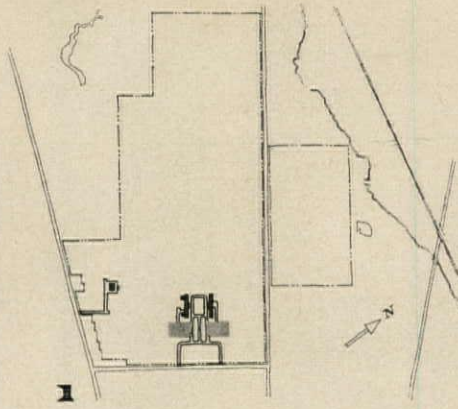
► Pedestrian paths, separate from the roads, are kept within the center courts and mall for easy intra-building access.

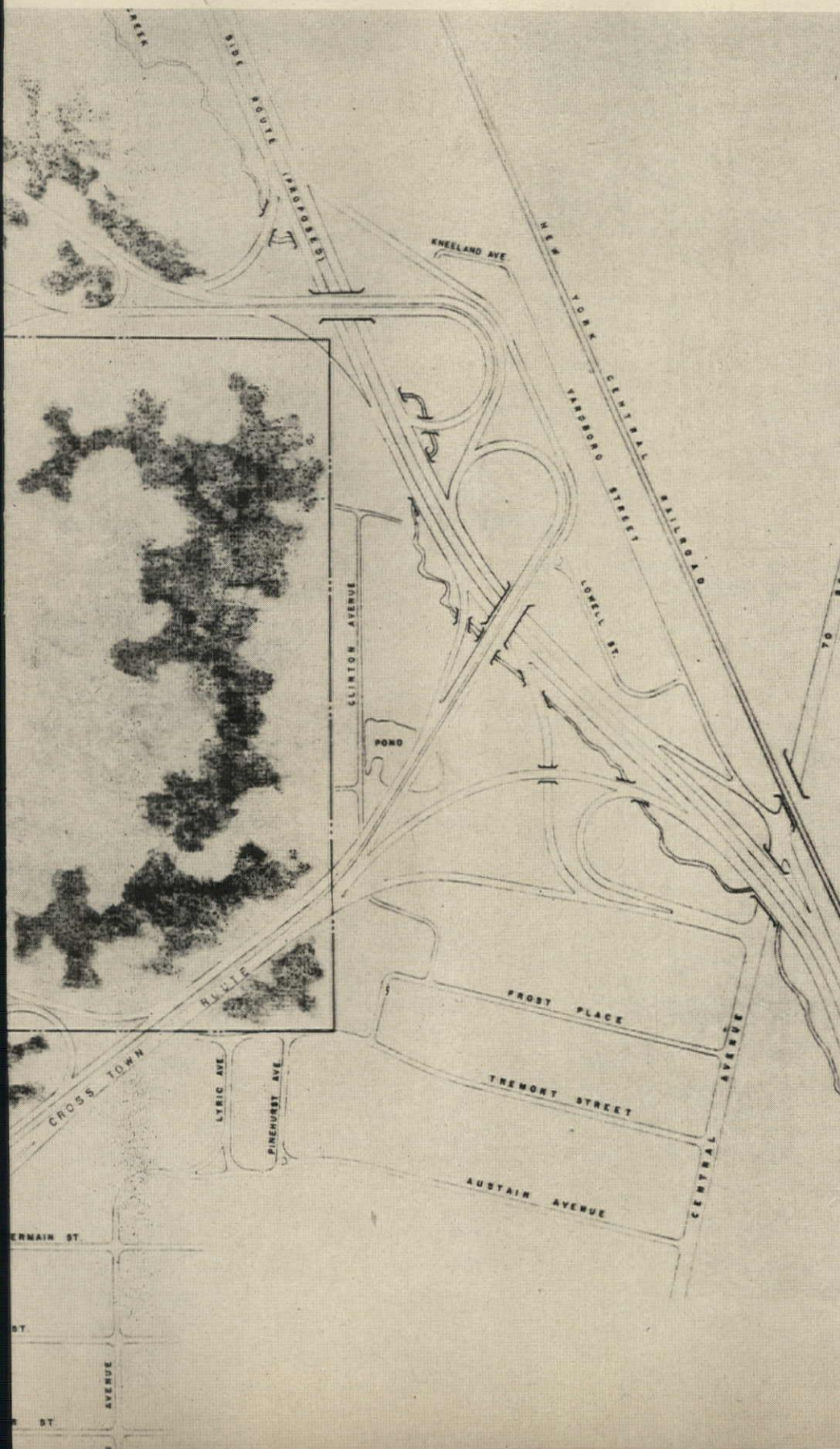
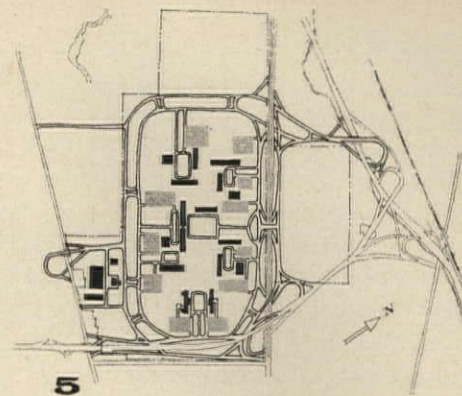
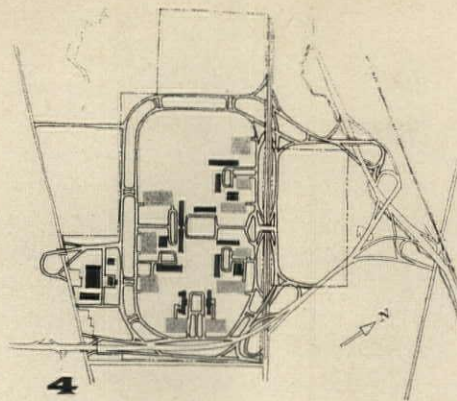
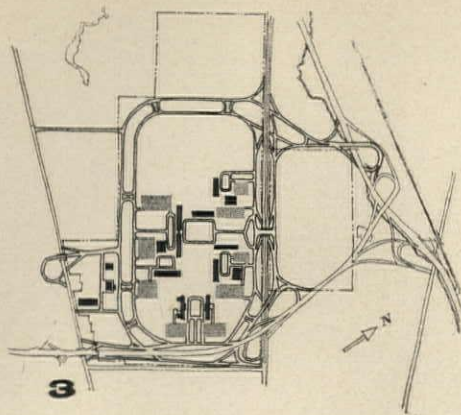
► Service buildings are set outside the loop because of their heavier traffic requirements.

► Four cafeteria buildings, near the office building groups, will be built as office-worker population grows.

CAMPUS BUILDING

Growing campus progresses through five stages of construction, matching office space to traffic and parking facilities. Loop road grows with building construction, finally encircling site to provide access to parking, service roads and cul-de-sacs leading to main building entrances. Service buildings (lower left) are separated from office structures, set outside superblock, for easier access by truck.





The achievement of such a master plan is not a casual or intuitional affair. In government, it cannot be legislated. In industry, it cannot be sketched on the back of an envelope by management and "drawn up" by the engineering department. Even where good architects and planners are involved it should not be considered a bonus to be thrown in with the construction drawings.

The Albany planning started with a survey of the use of existing space by the State's Bureau of the Budget. The Architects and the Bureau then projected the figures for each department to the scheduled occupancy date of its new building—and well beyond that date—to indicate the need for future expansion.

Some of this expansion will be provided in the initial buildings. In other cases, departments will be rearranged—one department making room for an expanding neighbor by moving to a new building. Beyond that, projections of future space needs are used in checking the plan for additions to the buildings—in seeing that space will be available where it will most likely be needed.

The fluctuating work force

Because the number of employees in a given state department fluctuates rather drastically from budget period to budget period, working force figures were not too helpful. But since a reasonable estimate of worker force was necessary for traffic, parking and cafeteria planning, a figure of one worker per 100 sq. ft. of office space was estimated.

In consultation with Traffic Consultant Wilbur Smith, the architects determined the number of persons traveling to the site by car and the number of persons traveling by public transportation, as well as the number of people per car (2.5) and the directions from which they

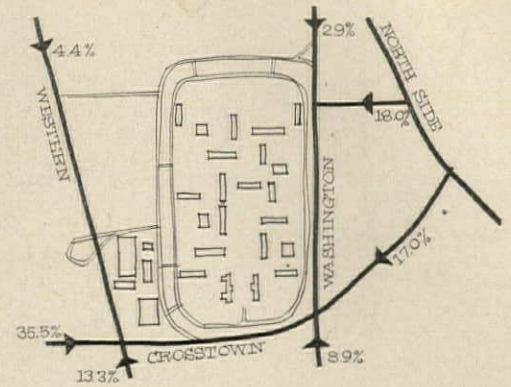
would come. Using these basic data they were able to plan the loop road and the access ramps, as well as the parking lots and the outlying highway relationships.

In gathering the basic data, actual surveys had to be tempered by judgment and experience because of the human tendency to color the truth in the service of their own interests.

The campus plan is neatly matched by an ingenious construction financing plan. Because of the difficulty of getting a bond issue passed through the legislature and ratified by the electorate, the state had to

find other ways of financing capital improvements. In this case, the resources of the state's employee pension funds (a 50-50 contributions system) will be borrowed at $3\frac{1}{2}\%$ interest. The debt will be retired over a 30-year period out of regular department budgets, in lieu of rent.

In this way, construction can proceed on the basis of straight economics. As old leases run out and new leases in the "spec" buildings downtown begin to run higher than housing costs on the campus, the buildings can be built—stage by stage, department by department.



Traffic plan is based on survey of worker traffic. Parking lot locations and loop road design were planned to serve the anticipated distribution of worker arrivals from the various routes to campus. About 70% of work force will arrive by car, each car averaging 2.5 passengers. If adequate bus transportation is not available, number of passengers per car will increase, rather than the total number of cars. Traffic consultants: Wilbur Smith Associates.

The political art of New York State building

In 1875, after seven years, work and \$5 million spent, work on New York's capitol building was halted. The exterior walls had only reached the third floor line, but costs were already \$1 million beyond the estimates. While the legislature debated a \$7 million supplemental appropriation, Albany was filled with rumors that the costly foundations would not support the structure. So a stop order was issued and a legislative commission began an investigation.

After a three-year investigation by the commission's advisors (Architects Eidlitz, Richardson, Landscapist Olmstead), the foundations were ruled sound, but the floor plan and architectural design were ruled unsound. Thus a new tempest was raised which ran in fury as work on the structure proceeded. All along, until after Richardson's death—until his fantastic quadripartite "million dollar" stair was finished—the style was switched from "Roman Renaissance" to "Romanesque" and back again—switched by architects' design, by legislative ruling, by a governor's fiat. Few buildings in history proceeded through such dissension.

In contrast with this earlier imbroglio, the progress of today's campus plan is calm indeed—if for no other reason than that politicians have become more subtle and architects more diplomatic.

During the Dewey administration, the state outgrew the near 500,000 sq. ft. in "Al Smith's folly" (the 33-story office building behind the capitol) and began spreading through Albany into drafty lofts, converted garages and cheap "spec" buildings. In 1945, Dewey appointed a bipartisan study commission headed by Assembly Speaker Oswald Heck, which recommended the purchase of the campus site and the preparation of a master plan.

The first master plan (prepared by ex-Public Works Commissioner and Consulting Engineer Charles H. Sells and Architects Skidmore, Owings & Merrill) was not accepted in Albany—among the

criticisms given was the suggestion that poor foundation conditions would make the 40-story central building not feasible.

In 1954, when the two Stage I buildings were under construction on the site without an accepted master plan to guide further development, the new governor, Averill Harriman, commissioned Ketchum, Gina & Sharp and Unger & Unger to produce a new master plan.

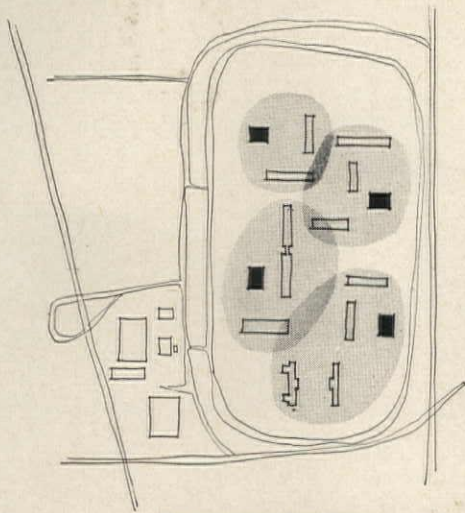
Although the new plan has the tacit approval of Governor Harriman, and Stage II buildings are being designed, the state is still engaged in building activity at variance with the basic principle of master planning. The Education Department is to add a new big wing to its old 1909 building downtown instead of expanding into the existing state office building as other departments move to the campus. New "spec" office buildings in the streets around the capitol are still being built for lease to the state. (The state now rents upward of 1 million sq. ft. in Albany.)

Albany's perennial Mayor Erastus Corning, who doubles as the city's real "Planning Commission," has opposed any state plan which would take downtown property off the real estate tax rolls. But he has been a supporter of the campus plan. Friendly to real estate interests in Albany, he feels that the pace of construction on the campus can be controlled so as to avoid distress in rented space downtown.

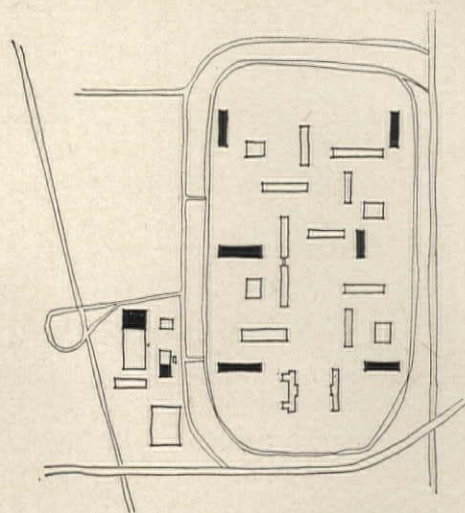
Actually, a healthy commercial renewal downtown could be stimulated by removal of state offices to the campus, freeing downtown for new action. This is a faint hope, however, in Albany's traditional laissez-faire atmosphere, which is stimulated by its complete dependence on the state for its sustenance.

The opportunity now available to the capitol in the master plan developed with the help of state officials from both parties would allow the mammoth and grinding enterprise of the state's government to stop the process of tempering, and playing by ear in their state building program.

Construction sequence: Two Stage I buildings, started before development of present master plan, are at upper left, toward downtown Albany. Stage II buildings (center) are now in planning stage. Stage III and IV buildings are at right.

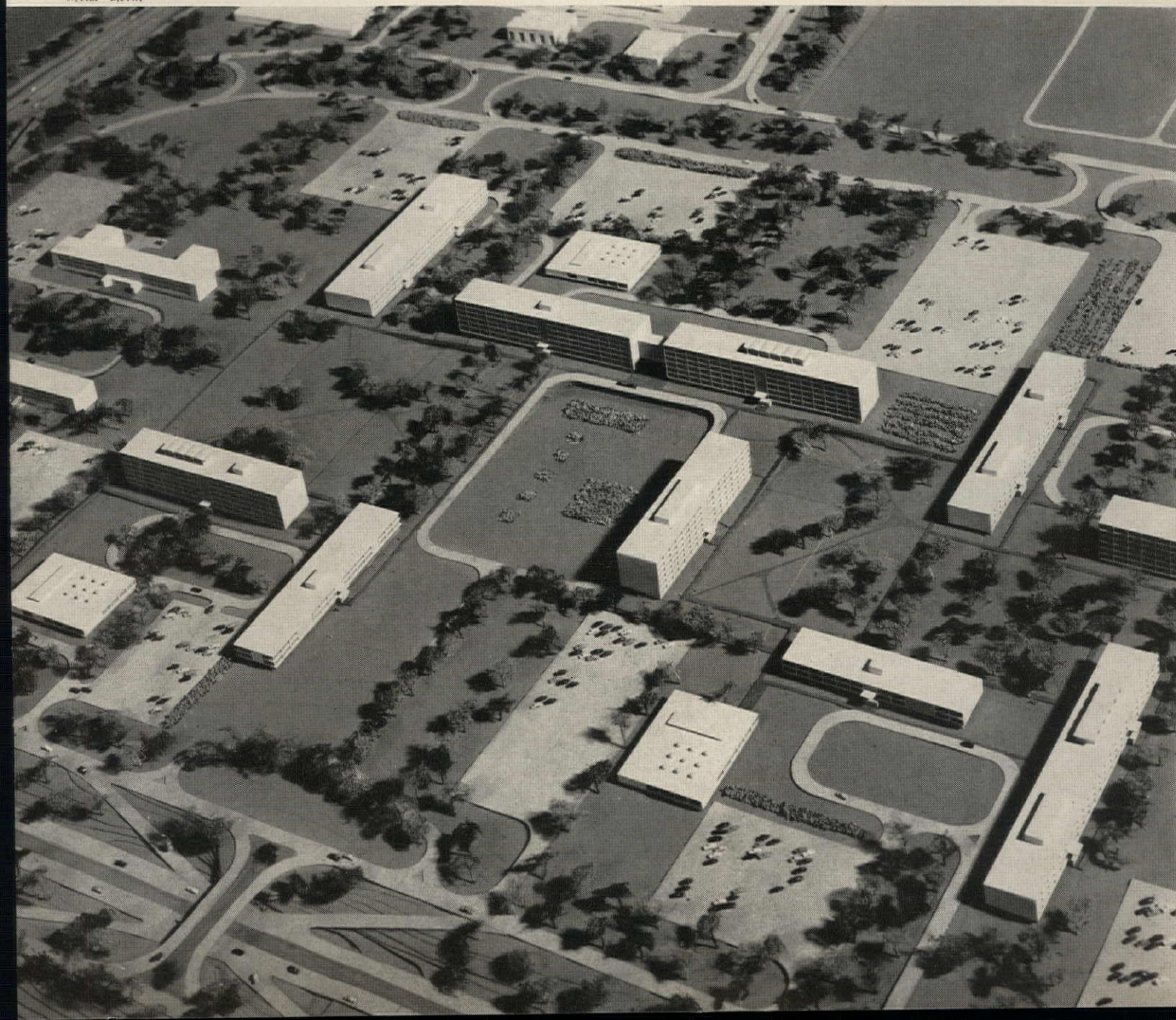


Cafeteria buildings (shown in black), one per 5,000 employees, are to be built in conjunction with office construction. They are arranged to allow easy access from office building groups. Master planning involved careful survey of lunchtime habits of working force. About 3,500 employees out of 5,000 will use cafeteria facilities; 300 will use private dining rooms. Remainder will bring lunches or eat off campus. Snack bars in each office building will serve for coffee breaks and box lunches.



Future construction, beyond projected growth, can take place in many different ways because of free building arrangement and wide spaces between buildings. Plan demonstrates how future buildings (shown in black) fit into campus. Buildings also could expand by extensions on the ends or by new wings. Contrary to old-fashioned formal layout, free campus arrangement is visually complete at any stage, without constricting growth unpredictable but sure to come.

N.Y.S.—D.P.W.





Gallery

Corbu in India

photographs by LEO LIONNI

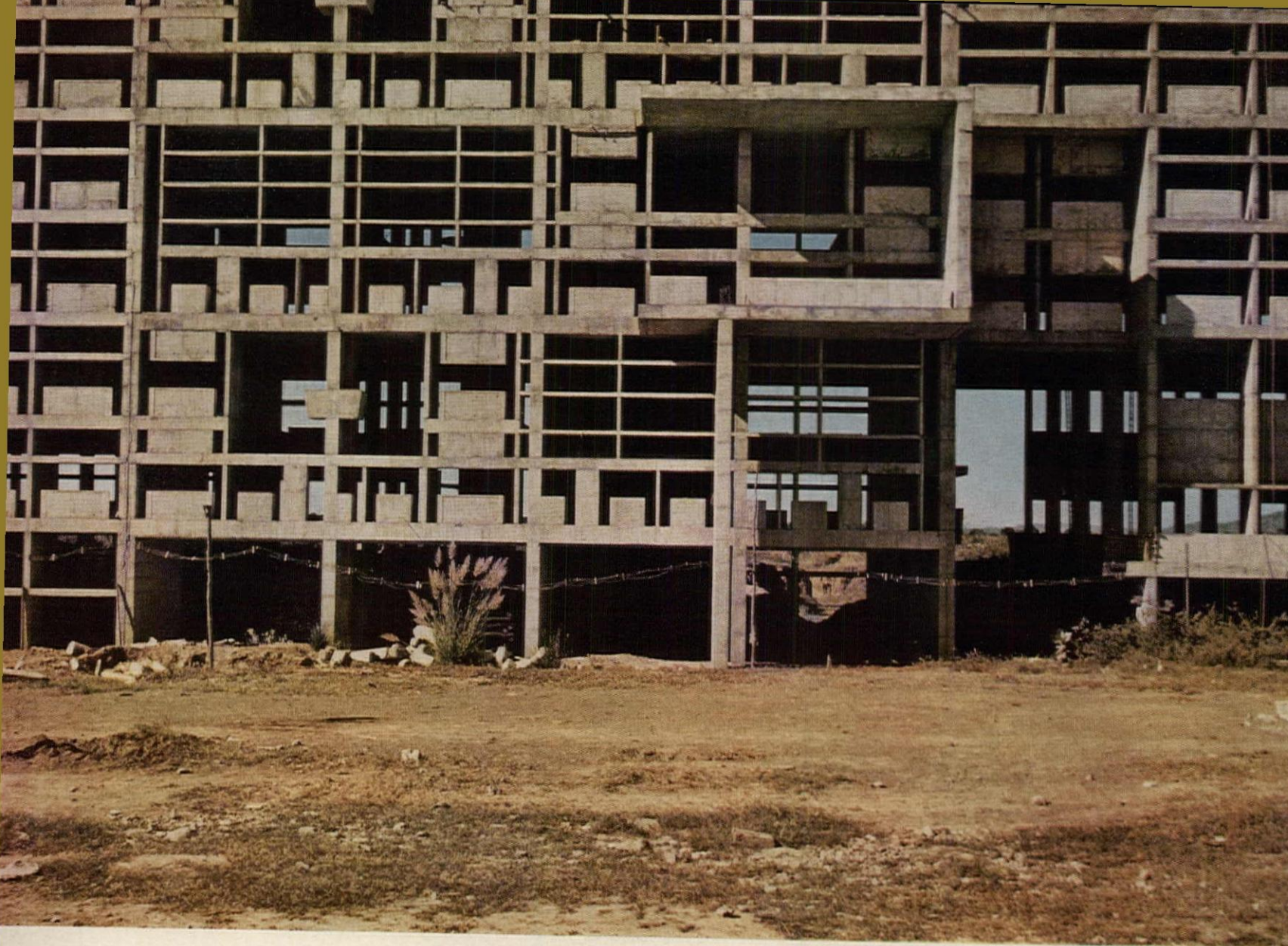
At the foothills of the Himalayas and on the burning plains along the Arabian Sea, the great French-Swiss Architect Le Corbusier has cast on the Indian landscape a wide variety of buildings—all remarkable for the fresh and powerful character of their architecture.

In Chandigarh, his celebrated new capitol city rising from the piedmont of East Punjab, Corbu's Secretariat building for the provincial government (above and opp.) surpasses his earlier Marseilles apartments (AF, March '54), not only in sheer size (830' long) but in the way the monotonous grid of such a large cellular building has been boldly broken into sculpture by accenting the quarters of a few high officials and by pulling the ramp-tower out as a great silo at the side.

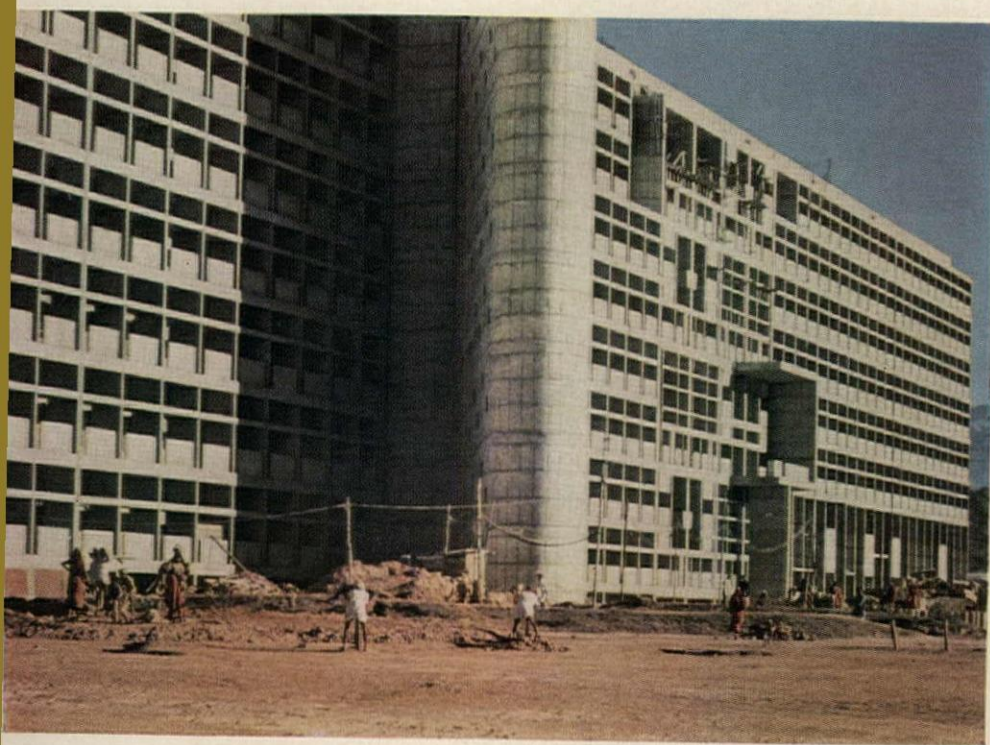
As if designing a whole new city for 150,000 people didn't provide enough variety, Corbu has stopped off in his international commuting long enough to do several quite different buildings for the coastal city of Ahmedabad: a museum, an office building, two or three private houses (following pages). In these too, the 70-year-old master of concrete has achieved a whole new depth and strength of design.

From the tall, shaded portico of Chandigarh's High Court, the Secretariat is glimpsed across the new city's broad plaza





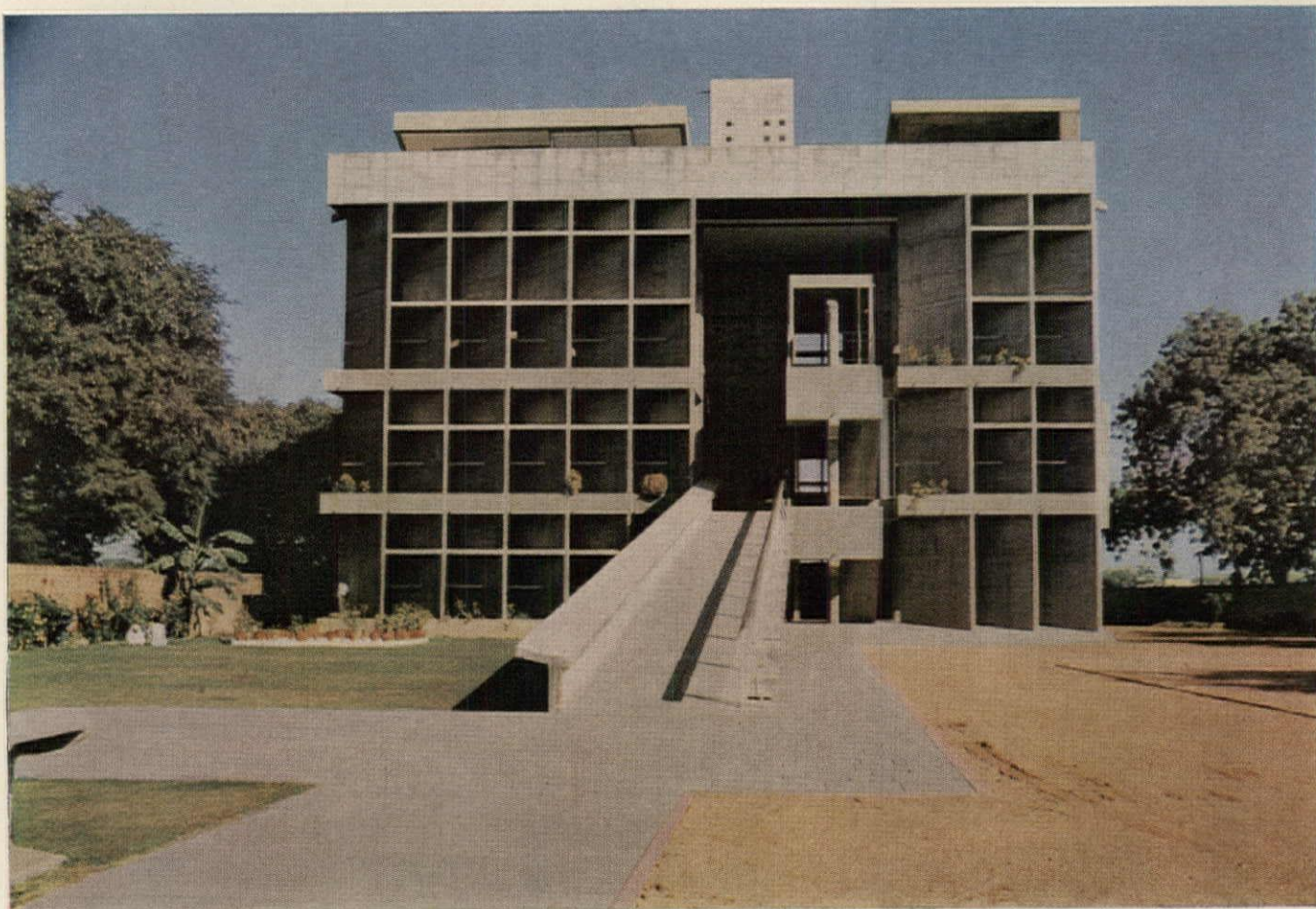
As the beehive pattern of clerks' offices marches down the façade of Chandigarh's Secretariat, cast-concrete panels and mullions suddenly jump into different attitudes and combinations to mark the rooms of key officers inside. A giant bracket shades and further emphasizes one such office, and an entrance gap below lets the eye in to explore spaces inside and beyond. Below, this pattern and its variations are seen to the right of the freestanding tower.





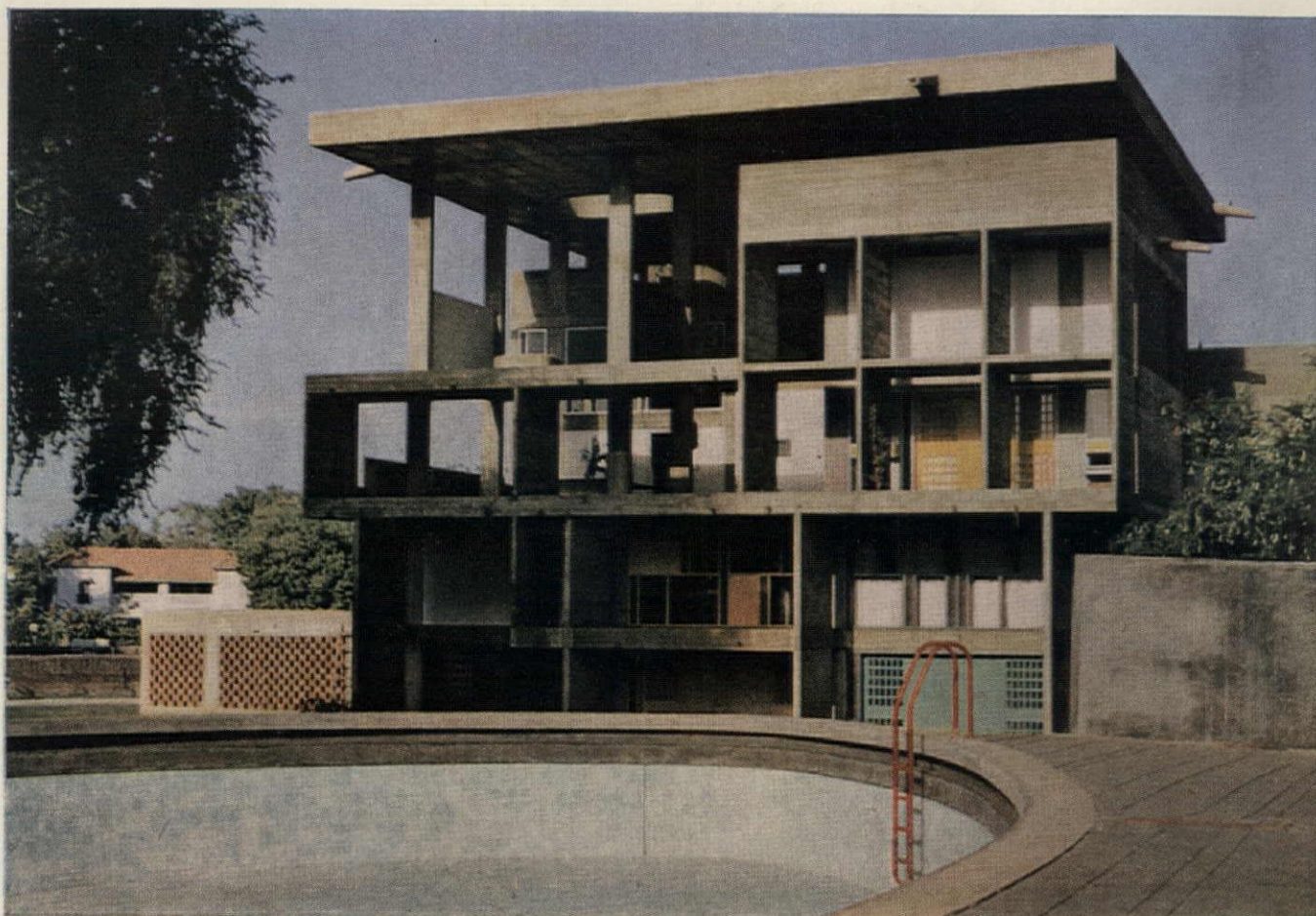
A new museum for Ahmedabad shields its treasures from the fierce Indian sun behind broad walls of brick. Visitors walk underneath to a shaded entrance and open patio at the center, ascend and work their way outward along a spiral plan. Below the slit of the open roof-gallery three rectangular holes create their own composition and a link between inside and out.



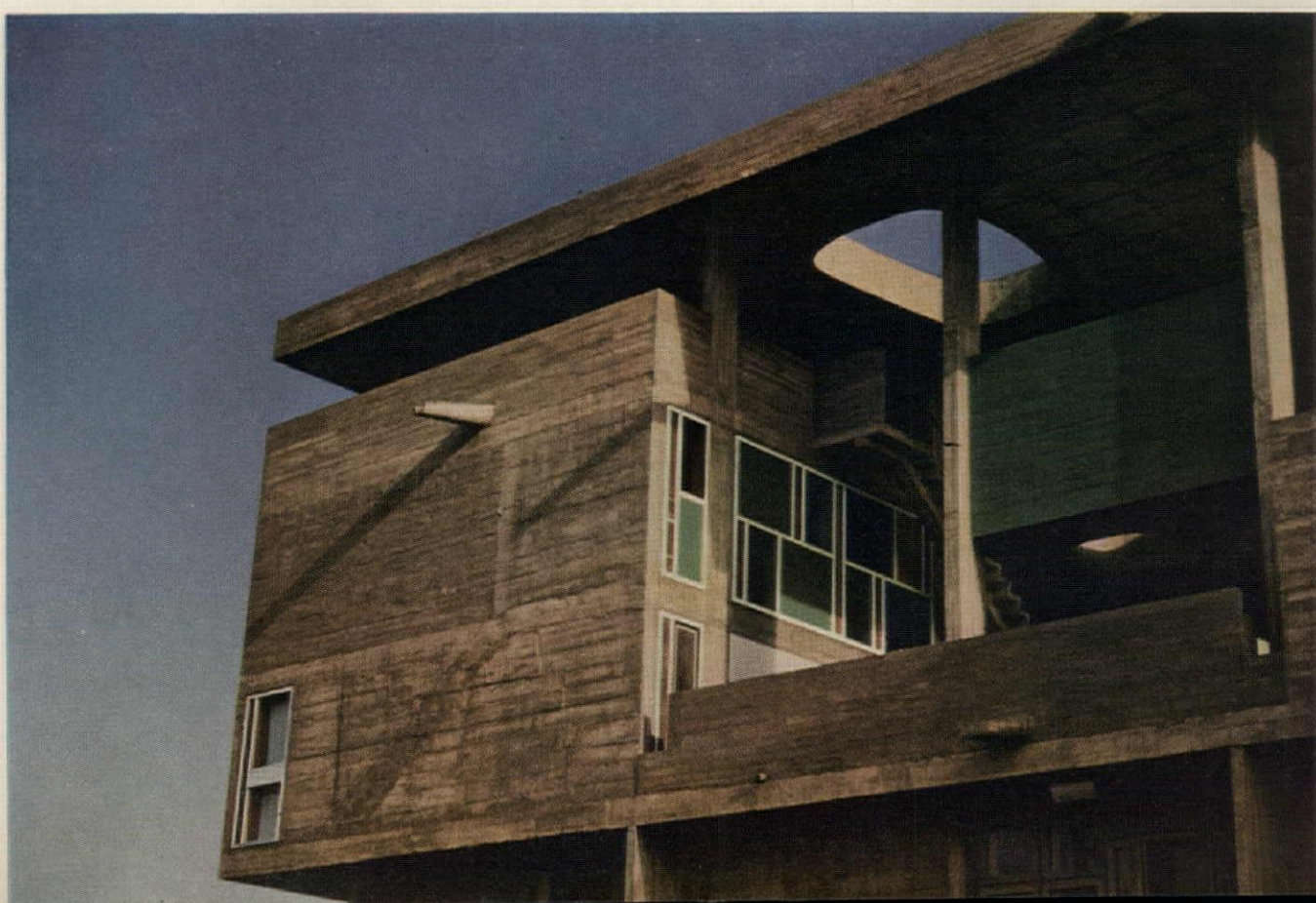


A deep eggcrate of slim concrete louvers angled toward the sun makes a deeply three-dimensional façade for a small office building in a park, the headquarters of the Ahmedabad association of cotton-mill owners. A ramp with contrasting railings leads into a deeply shaded stairwell from which the stairs have been removed to become a sculptural decoration.





As do Corbu's other new buildings, this private home in Ahmedabad shows the striking proportions and compositions of his "modulor" system of dimensions. Like a giant piece of sculpture, it draws the eye to climb in and out, underneath or up through a hole in the roof, to touch the heavy textures of raw concrete and delight in the sudden splashes of brilliant color.





America's capacity for fun and relaxation has sparked a boom in resort and retirement land unlike any in history

Land III: Leisure's lush acres

by FRANK FOGARTY

Of all the forces that have made the postwar land boom one of the greatest in history, none is more significant than the peculiar restlessness of the US population—the uncontrollable itch of Americans to go places, have fun and to buy, if only temporarily, a place for themselves in the sun. Never before has there been a society so bent on travel and sport, and to this generation, with money in its pockets and time on its hands, the thought of recreation and retirement on the nation's playgrounds has proved well-nigh irresistible.

Sight unseen, it has bought cabins, rented cottages and booked resort hotels and boarding houses beyond capacity. It has made household words out of playland names that were nonexistent a decade ago; has revived an all-but-forgotten mail-order business in lots; and has restored to **grace** a real estate lexicon in which any land that is wet can be a lakefront, and any ground 8' above water can be high. It has suffered countless indignities—bad beds, poor plumbing and overcrowding—all in the name of fun. And in doing this, it has created, quite unintentionally, a spiral in the price of resort and retirement land that is not only the equal of the suburban land boom, which was the subject of the first article in this series, but comes painfully close in some

Miami Beach, biggest of midwinter meccas, has been adding hotels at the rate of one a year, still lacked space to handle record crowds this season. Only one big site is left for building now.

PHOTOS: (BELOW) LOOKIS DEAN—LIFE; (OPP. P.) STAN WAYMAN—LIFE



Desert land in California, Arizona and New Mexico has been heavily developed since war. Desert Air Hotel in Palm Springs lures high-flying, but highly lucrative clientele.

of its aspects to matching the feverish uptrading of prices that marked the boom of the twenties.

Since 1947, the cost of residential and commercial land in America's most heavily trafficked resorts has, on the average, risen three to four times, when measured in current dollars. In some sections, where tourism was an insignificant factor ten years ago, FORUM's nationwide sampling of land prices has found even greater gains, as much as 1,000%. (Deviations on the downside of this pattern show mainly in older resorts where there had been a noticeable change of clientele in the direction of lower income groups.)

Nowhere do these markups show more dramatically than on the nation's beaches and lakesides, for if sand and snow have been the topping to this boom, water has been its basic ingredient. On Cape Cod, for instance, where over-all summer growth is estimated at 600 to 700% for the last ten years, waterfront lots around Hyannis now sell as high as \$8,000, compared with \$1,500 in 1947. A land buyer in Myrtle Beach, S.C., today will have to pay more than \$1,800 a ft. for beach frontage where three years ago the top price was \$200, and, ten years back, acres sold at \$10. Around Chicago, "lake" is a magic word, and along the Fox River, 30 mi. north of the Loop, land beside dredged-out swamps, dammed-up streams and stretched-out ponds has climbed five to six times in price since 1947.

In Aspen, winter snow and summer culture have driven the price of some residential lots up 300 to 400%; one plot of downtown land that sold for \$4,500 in 1950 sold again last year for \$32,000. Waterfront

BERKO



Mountain land of Aspen, Col., now year-around resort, is site of 16 new hotels and lodges since 1948. Saarinen tent is part of summer cultural center.



GEORGE SILK—LIFE

Ski land of New England—Bromley, Mt. Snow, Stowe—has boomed with spread of sport (an estimated 3 million to 4 million skiers on US slopes this year). Nearly 400 resorts are now operating through northern half of country.

sites on Puget Sound's San Juan Islands have climbed from \$1 a ft. five years ago to \$10 in the raw today. Phoenix has had jumps of 400 and 500% in the price of some of its commercial resort land, metropolitan Los Angeles 500 to 600%, and Florida, which as we shall see later is a case unto itself, a staggering 1,000% markup in some oceanfront sites.

Years of diffusion

The economic forces that underlie these price gains are by now so well known as to require no more than summary here. Mainly, they are all a part of that tremendous material upgrading which the Council of Economic Advisers has chosen to call "the diffusion of well being"—the rise in disposable personal income from \$1,173 per capita in 1947 to \$1,705 in 1956; the growth in the percentage of families and independent individuals with pretax income of \$5,000 or more (44.1% in 1955 against 24.2% in 1947); the increase in the amount of vacation time and of vacation spending by US workers. While the number of weeks of vacation climbed from 43 million in 1947 to 70 million in 1956, total outlays for domestic vacations and week ends soared from \$5.4 billion to more than \$10 billion.

Coupled with these economic forces has been a demographic one—an aging population in which there are now four times as many people 65 or over as there were in 1900, and in which oldsters now make up more than 8% of the US total, compared with 4% at the start of the century. Though retired workers have been a decidedly secondary force in creating the resort land

boom (only 15% of the 14 million aged have incomes of more than \$2,000 a year, and an even smaller percentage owns a home and has liquid assets of \$5,000 or more) the number of independent pensioners has been rising, and their land buying has been a factor in price markups, particularly in areas around the smaller cities of the semitropical states. The migration of the aged has probably been nowhere so great as popular reading makes it. But it has left a mark on Arizona, New Mexico, California and most of all on Florida, where there has been a 54% increase in the over-65 population in just five years, and where once before there was a lot-buying boom that was fanned, at least in part, by visions of retirement in the sun.

Tropical fever

Probably no other section of the country evokes so automatic an association between land and boom as the semitropical, semisubmerged state of Florida. The short-lived price spree that accompanied its frenzied development in the twenties became a national phenomenon, and "investing" in Florida real estate was as much a part of the times as playing the market. However one chooses to view the state's present land prosperity—and its natives refuse to call it a boom at all, merely an expansion—a comparison of Florida's twenties and fifties is unavoidable. For nowhere is there clearer evidence of how today's buildup of resort and recreation land prices resembles the boom of 30 years ago—and how it differs from it.

Though the years have made the first Florida boom



Shore land for marinas and trailer camps is in heavy demand from the 30 million Americans that are now taking to boats each year. This is California's Lido park and anchorage.

seem a part of the entire Harding-Coolidge era, its actual life was much shorter. The real rush began in 1924, reached a climax in the summer and fall of 1925, when a Florida rail embargo had to be imposed on non-perishable freight to prevent a food shortage, and collapsed resoundingly on Sept. 18, 1926, blown apart by a West Indian hurricane that swept across the southern part of the state leaving 50,000 people homeless and more than 400 dead. In its brief two years, however, the Florida land fever surpassed anything that had ever been seen, even in the wildest days of railroad land speculation. For 60-odd miles north of Miami, wholesale subdividing carved the shorefront into 50' lots, and entire new cities—Coral Gables, Miami Beach, Hollywood, Boca Raton—rose out of the mangrove swamps beside the sea. By 1925, an estimated 2,000 real estate offices were operating in Miami, and the activities of 25,000 real estate agents became so much of a congestion problem that the city was forced to pass an ordinance forbidding the sale of property in the streets or even the display of a map. Hundreds of people daily climbed aboard free buses to inspect the lots on the American Riviera that was to stretch north to Palm Beach; thousands sank deposits on submerged Everglades land (a fact that prompted the late Fred Allen to announce excitedly years later that they had just found land on his Florida real estate); and all over the country, Toms and Dicks and Harrys rushed to buy a piece of paradise by mail order.

If the force that generated this tremendous spree was the public's dream of

continued on p. 246

Beach land lures most of US vacationers; Cape Cod (below), where tourism is up five to six times over early postwar years, has had 400 and 500% jumps in waterfront prices.



CORNELL CAPA—LIFE





Modern in its concepts of space and structure, yet darkly medieval in its mood,
an underground museum reveals its riches with a rare intensity

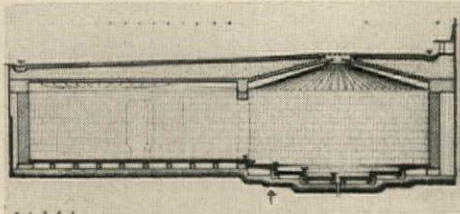
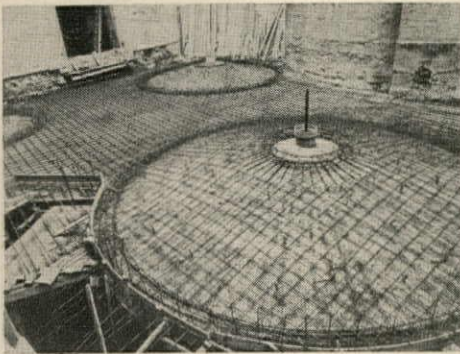
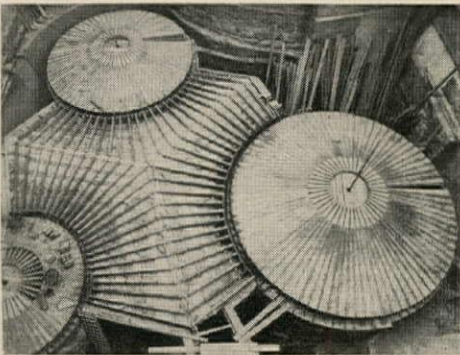
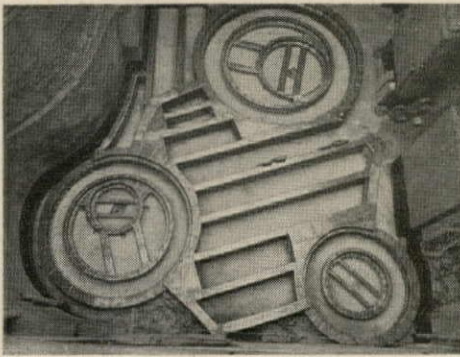
A buried treasury

If Galahad or Parsifal were still questing for the Holy Grail, they would certainly want to check into an unusual little museum recently built under the cathedral of San Lorenzo in Genoa. Here, glowing from a special niche right opposite the entrance, they would find their—and San Lorenzo's—prize: a delicate greenish basin of Roman origin, one of several in the world supposed to have held the Last Supper or caught the blood of Christ (photo above). In the rooms beyond, moreover, they would also find one of the richest and most beautifully displayed collections of religious art in Italy.

To house the treasures of San Lorenzo where visitors could see them, and where heavy pieces could be brought out easily for ceremonial use, Architect Franco Albini had to

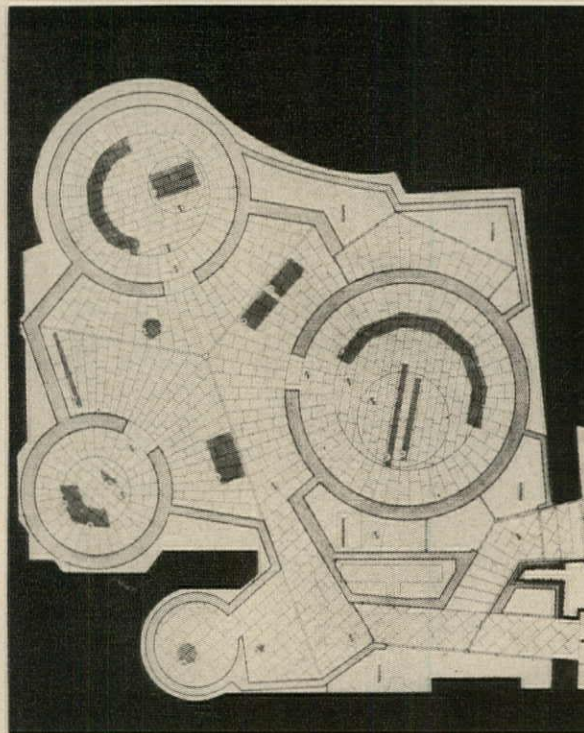
squeeze the new museum under a small, irregular courtyard formed by the cathedral's apse and the wings of the archbishopric (see overleaf). The geometry of crypt-like rooms Albini tucked into this limited space is as effective in stone as it is striking on paper. The experience of seeing the glittering collection is heightened not only by its moody setting of dark gray stone and spotlights on red velvet, but by calculated contrasts in the sizes, shapes and directions of the spaces themselves. On descending from the cathedral floor above, the visitor turns a corner, steps through an iron gate and into an anteroom designed to display a statue of the church's patron saint (seen as a shadow, above, in front of the small sacristy of the Grail). Turning to the right, the space narrows again

to a short tunnel passage, then suddenly bursts into a big hexagonal room penetrated by three larger cylindrical sacristies of different diameter. As the visitor steps through the keyhole-shaped doorway into each, a still different kind of space suggests walking around the treasured objects, and a floor stepped down in eccentric modern circles allows closer views at various levels. The photo at left shows the largest sacristy, with one of a pair of gold altar-fronts at the center, and hammered-iron display cases behind, down-lighting chalices and altar-pieces on red velvet trays. In all the rooms, the patterns of floors, walls and ceilings lead the eye from the center of the museum toward each sacristy, and within each to emphasize the sacred pieces focused in the middle under dramatic spotlighting.



Foundations for the new museum were laid in an excavation between the cathedral apse (left) and walls of the archbishop's palace. Neatly welded lead sheets cap the walls to keep the treasury free of ground moisture. Below, precast concrete floor slabs are laid and prepared for a thin finish flooring of dark gray Promontorio stone, laid in directional patterns (see plan and section, bottom).

Spiny roof is built up of tapered precast concrete joists topped by narrow precast concrete slabs (already in place on the shallow domes). A concrete ring to hold the joists is poured around the lantern of each dome. Below, reinforcing mesh is placed over the precast roof slabs for a poured binding slab, which in turn will be covered by pumice fill, another lead moisture barrier, and a courtyard surface of cobblestone suggesting the abstract pattern of joists below.



PHOTOS: (ABOVE) M. SILVERSTONE; (LEFT) GASPARINI 1

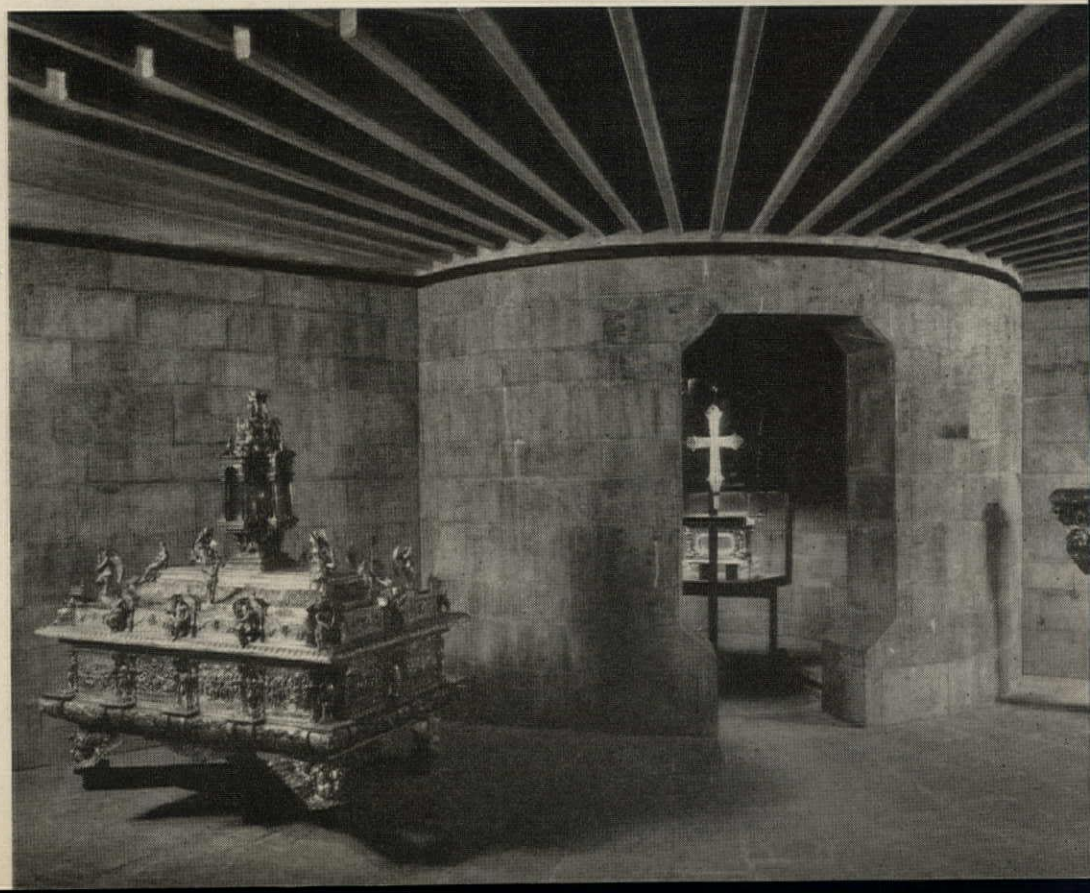
The treasures: (1) daylight from the courtyard filters down through a small glass-block skylight into the largest of the three circular sacristies revealing the spoke pattern of concrete ceiling joists bonded to a concrete ring atop the walls of finely chiseled stone. (2) An eighteenth-century silver statue of the Madonna by Francesco Schiaffino stands near the keyhole entrance to the middle-sized sacristy, which holds the gilded silver ark of San Giovanni, seen in closeup in the large photograph (3). Plug-in strips around ceiling and steps allow flexibility in mounting display or temporary work lights. (4) Glass cases on hammered-iron trees take their shape from the finely embroidered vestments they protect. (5) A sixteenth-century silver ark, used in the procession of Corpus Domini, stands before the smallest of the three main sacristies housing the jeweled Cross of Zaccharia.

2 3



PHOTOS: (BELOW) M. SILVERSTONE; (OTHERS) FOTOGRAMMA

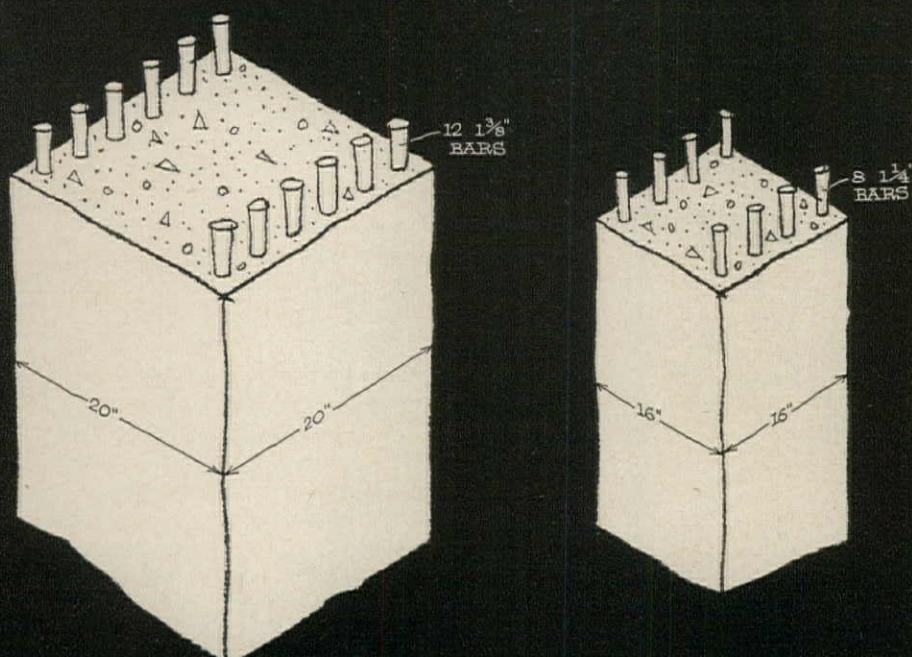
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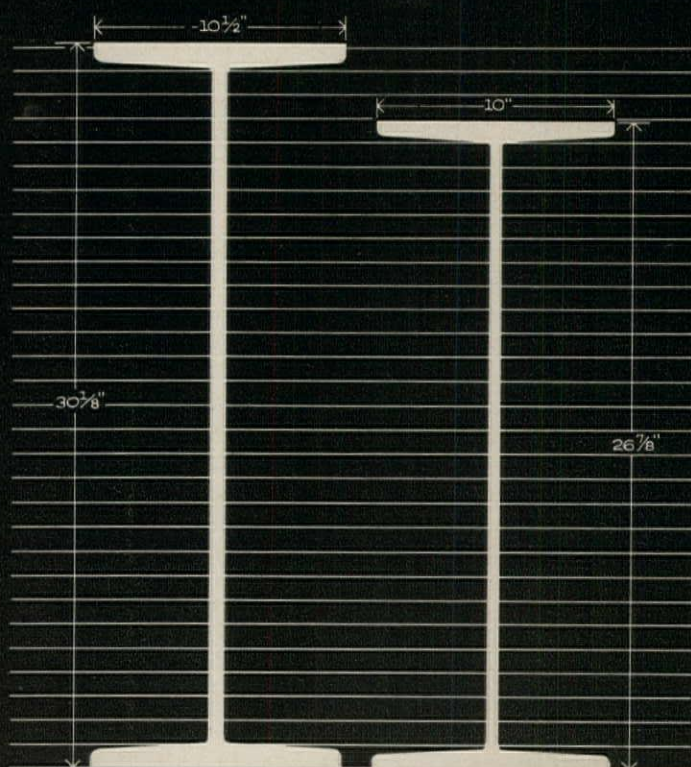
Tomorrow's building frame will weigh less and cost less. The reason: two new approaches to structural design, one for reinforced concrete and the other for steel

Technology

The case of



Comparison of structural members calculated to do same work demonstrates economy of new design concepts. Large members at left were designed by conventional methods; small members at right, by new ultimate strength theory for concrete and plastic theory for steel.



Two new concepts of structural design, representing the most significant advances in structural engineering design theory during the past 50 years, are ready now for architectural application. One of these is reinforced concrete's theory of ultimate strength, a design technique which uses a greater amount of reinforced concrete's inherent strength. The other is the theory of plastic design for structural steel, which enables the designer to create a more trim, efficient steel skeleton.

Both concepts have been developed because we now know that these two basic structural materials possess greater capacity for carrying weight than we were once willing to concede, meaning that the engineer can now design better structures of lighter weight. Steel beams in many structures can be reduced in size and weight by as much as one-third over those designed by conventional methods.

Both concepts have had more extensive application in Europe, where most of the early theoretical work was done, than in the US. But within the past year, important steps have been taken to bring both to the threshold of American design. On recommendation of a joint committee of the American Concrete Institute and the American Society of Civil Engineers, the ACI Building Code now permits the use of the ultimate strength method in reinforced concrete design. Soon, the design specifications of the American Institute of Steel Construction will be revised to authorize application of the plastic theory to certain types of steel structures.

Such sanctions are essential if the new concepts are to be put into practice, but they are not tantamount to national adoption, since municipal codes must first be revised. Furthermore, as is true of existing design methods, the two new concepts do not have universal application. In the case of concrete, for example, the conventional design method, elastic analysis, is now better suited to design of most thin shell structures and structures which are subject to fatigue-type loading (e.g., bridges). In structural steel, also, fatigue-type loading is a limiting factor; and, because of insufficient experience, plastic theory can be applied now only

the overweight skeleton

to one- and two-story structures of the multispans, rigid-frame type. Says Walter Weiskopf, long a progressive booster of plastic design in steel: "For multi-story structures, it appears that more research must be done. But the theory of plastic design has reached the point where it can almost be applied to multi-story buildings."

Back to Galileo

Although a great amount of ground-work on both theories has been carried on by European scientists, it has been more recent research by American groups which has given ACI and AISC confidence that ultimate strength design in reinforced concrete and plastic design in steel should be applied in the US. During the past ten years, research in the US has been done at a number of universities, Lehigh, Illinois, and Brown being three notable examples, and at such industry-sponsored institutions as the laboratories of the Portland Cement Assn.

The roots of both new concepts trace back to 1638 and Galileo, author of the first book on the theory of structural analysis and, in fact, the father of the principles of modern structural design. Galileo set down the principles by which stress and strain could be computed, work which was based on observations he had made in his study of beam flexure. Some 40 years later, the Englishman, Robert Hooke, mathematician - physicist-astronomer-philosopher, discovered in studying a watch spring that the magnitude of power depends directly upon how tightly the spring is squeezed together. Hooke simply stated his discovery in 1676 in the teasing guise of a Latin anagram: that up to the elastic limit, "as the stress is, so is the strain." Then he went on to other things. Despite its playful birth, Hooke's Law became a mighty truth, to prevail to this day. Indeed, it is a canon of modern science that an elastic material under force (stress) will deform (strain) in direct proportion to the amount of force applied. It is in part the sacredness of this law of elasticity which, in fact, plagues the two new theories of structural design, for both propose that design reach beyond the elastic limit, which was Hooke's boundary, and consider instead

the plastic range of a material. This bold proposal is precisely the same as ignoring the magnitude of force required to cause permanent deformation of a material and, instead, considering the force required to cause failure. Permanent deformation, which shall be ignored, is the elastic limit; failure is the plastic limit.

To the architect or engineer who does not fully grasp the intent of the new theories, this may seem a disastrous boundary for design, for once out of the elastic range, as every freshman engineer knows, a material could collapse and certainly does lose its shape. However, both are quite conservative techniques, using factors of safety which insure service loading only within the elastic range.

In reinforced concrete

Concrete will be considered first, for the new theory in concrete design does not go so far as that in steel, and familiarity with the former will help to place the latter in perspective.

At the turn of the century, two theories existed in the design of reinforced concrete. One was the elastic theory, which warned that any critical point at a section on a beam or column must never be required to exert its maximum strength, for at maximum strength the member is dangerously close to failure. By elastic analysis, internal stresses at each section of a beam or column were equated to the allowable stresses at each section; the section was so designed that the internal stresses, under load, would never exceed the allowable stresses. There was guesswork, to be sure, for little was known then of the real strength of reinforced concrete. The second theory was an ancestor of today's ultimate strength theory; it held that maximum strength was not the ominous, edge-of-cliff danger point it had been made out to be. Something happened within a section of overloaded concrete which reduced the danger of failure when the section reached its maximum strength. It was proper, this theory held, to consider maximum strength in design because of a phenomenon called stress redistribution. The point on a beam's cross-section which was strained beyond its maximum strength was capable of

redistributing stress to other points on the same cross-section.

In essence, this is still the basic distinction between ultimate strength and elastic theory. But a vast amount of information has piled up during the past 50 years to make the ultimate strength theory a much more realistic design concept than it was in 1900. At that time, however, the elastic theory became the accepted method of design; it was then mathematically simple, and its resulting safety factors were sufficiently controlled to satisfy the requirements of the time.

Today, though it continues to dominate design practice, the elastic theory is no longer supreme, because considerably more is known about reinforced concrete itself as a result of years of fundamental research by such organizations as the University of Illinois and the Portland Cement Assn., and because of the scientific contributions of many men to the advance of the ultimate strength theory. The most significant contributions by US engineers came from two men: Charles S. Whitney, the New York structural engineer; and Vernon P. Jensen, formerly of the University of Illinois. Their papers on ultimate strength design—Whitney's of 1937 and Jensen's of 1943—are now considered classics.

The key step toward ultimate strength design was made in 1944, when the joint committee of ACI and ASCE was established to study the results of world-wide research on the theory. The committee initiated extensive analytical investigations of its own as well, and after ten years of work recommended in 1955 to ACI that the ultimate strength method of design be used for reinforced concrete.

What, exactly, does this mean to the architect or engineer who now designs by the elastic theory? It means that he now has an alternate method of design which is based on the inelastic action of concrete cross sections—either conventionally reinforced or prestressed—which are subject to simple bending or axial load, or combinations of these. It permits him to use smaller, tougher beams, which are more heavily reinforced for tension—either with more steel or with stronger steel. In the structures thus designed, the overriding

objective is to design for uniform strength, so that material will not be used where it is not actually needed.

Most structural engineers who have applied the new technique insist that it is a more rational procedure than elastic analysis, because it offers a single approach to the entire range of reinforced concrete design, where elastic analysis requires one approach for beams, two for columns.

To be sure, there are qualifying rules which must be followed in ultimate strength design. While not reflecting upon the considerable work done over the past 20 years, these limitations do indicate certain unknowns which exist today in concrete's complex behavior. As Charles S. Whitney says: "While the new method saves design time and allows the designer some additional latitude in choice of sections, it does not relieve him of any of his previous responsibilities, nor does it eliminate the need for experience and good judgment."

Especially are experience and good judgment important when considering the question of shear strength, which is one of the intangibles of reinforced concrete. Shear strength cannot always be determined because volume changes in the concrete—due to shrinkage and temperature change during hardening—have serious and unpredictable effects on a beam's ability to withstand shearing forces.

Research projects concerning shear strength are under way now at several universities, including Illinois, Nebraska, Columbia and the University of Texas. Until some firm answers are available, the codes must continue to require that structures be "overdesigned" to compensate for the unknowns of shear. Nevertheless, the tools of the new design concept, even with this imperfection, are far more versatile than any in the past. The future of ultimate strength design in the US depends now upon the architect and engineer, and their willingness to apply it, for the great need at this time is for extensive practical experience.

In the laboratories, meanwhile, research teams have begun to look to another, more advanced theory for reinforced concrete: the theory of limit design. This is akin to steel's new plastic theory, though it is years behind steel.

In structural steel

The story of plastic design in structural steel is quite different. It might be called a more daring idea, for it goes beyond concrete's limit—maximum strength of a section—and considers instead the maximum strength of the

entire structure. Also, it is quite a bit more straightforward in design application.

Steel's great advantage over reinforced concrete, aside from its compactness, is its ductility. Yet, since the earliest days of structural steel design, the engineer has not been able to exploit this quality fully. The result has been wasteful use of thousands of tons of steel and a wasteful expenditure of millions of man-hours in design. To the building industry, this new concept could rank in importance with the rolling of the first wide-flange beam.

Plastic design differs from conventional design in this way: conventional design is based on the so-called "working stress" concept, with the maximum allowable stress usually equal to 20,000 psi at working load. In elastic design, a stress analysis must be worked out to determine the critical cross-sections within a structure. (A critical cross-section is one at which the allowable stress is first reached.) The strength of each section must be adequate to resist working loads. Stress within the section is never permitted to exceed 24,000 psi. In plastic design, on the other hand, stress means nothing; neither does the strength at a particular section. The meaningful factor is the maximum strength of the whole structure, which is quite another thing from the maximum strength of one of its sections.

Justification for this snubbing of stress comes from the knowledge that a rigidly connected structure has a much greater load-carrying capacity than is assumed by the conventional

elastic concept. A rigid-frame structure is able to carry greater loads than are indicated by the old elastic theory because of an automatic redistribution of stress which takes place. As increasing load is applied to the structure, one section will eventually reach a point of maximum elastic strength. This, by definition, is its yield strength. If the section were to react at yield strength, as assumed by elastic theory, it would fail. But this does not happen. Instead, the section simply refuses to take more force, and the excess goes to another section of the structure. Thus, the structure calls upon those sections which are not working at full capacity to put forth more effort. This democratic behavior of steel, which is due to the metal's ductility, is the quality which the plastic design theorists propose to use. Eventually, enough sections are working at maximum capacity—a point called maximum load value—and rapid deformation begins.

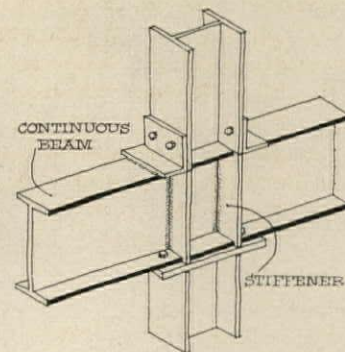
The theorists do not suggest that structures be loaded to maximum load value, of course, but only that this point, which is easy to compute accurately, be the design criterion, and that a safety factor be applied to it, rather than the allowable stress value of 20,000 psi, which is the elastic theory's magic number.

Why hasn't the principle of plastic behavior been used before? It has, actually, though not always consciously. In the design of riveted lap splice between two plates, it is assumed that all rivets carry an equal share of the load. This is not a valid assumption



FIRST IN NORTH AMERICA

A modest two-story office building in Kingston, Ontario, is the first designed by plastic analysis in North America. The building was completed two months ago. Structural Designer Douglas T. Wright, who studied plastic design theory at Cambridge University and now teaches it at Kingston's Queens University, proposed the technique for this building when Architect L. V. Gallaher could not get the necessary steel for a conventional design. By plastic design, which has been permitted in Canada since 1953, Wright made beams continuous (sketch), trimmed beam



weight by 22%, from 32.8 tons which would be required by conventional design to 25.5 tons.

In the US, though plastic method is not yet permitted for structural steel design, the M. W. Kellogg Co., New York, reports that its subsidiary firm, Kellogg International Corp., London, has applied the plastic design theory on a large compressor house, at Wilton, England. Steel required for the building—which is 80' wide, 380' long, 38' in height—was 280 tons. If conventional design procedure had been used, 350 tons of steel would have been needed, a saving of 20%.

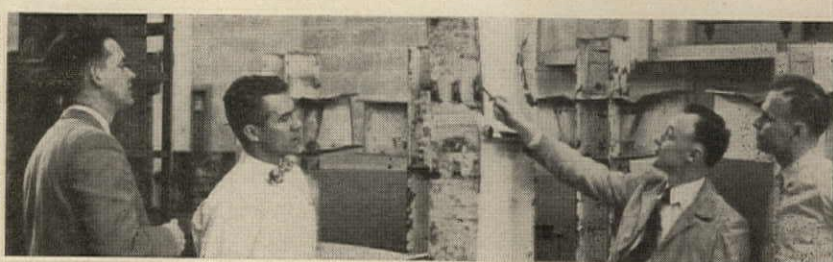


WALTER DUBAN



IN CONCRETE: important contributors to new theory of ultimate strength have been Charles S. Whitney (left), and Eivind Hognestad (above).

FRITZ ENGINEERING SERVICE



IN STEEL: work by Lehigh team has furthered the application of new plastic theory; (l. to r.) Robert Ketter, Lynn Beedle, George Driscoll and Bruno Thurlimann.

unless plastic behavior is recognized, because the rivets at the ends of the splice carry more load than those near the middle. But as the harder-working rivets reach their maximum strength—or elastic limit—the excess stress is redistributed to the rivets near the middle, an action which amounts to an unconscious use of plastic design.

The history

Conscious plastic design, however, has required years of painstaking development, which, like concrete's ultimate strength theory, represents the determination and foresight of many men, including Professors J. F. Baker, Michael Horne and John Roderick of Cambridge University, England; Doctors Lynn S. Beedle, Bruno Thurlimann and Robert L. Ketter of Lehigh University; Dr. Bruce Johnston of the University of Michigan; Professors Paul Symonds, William Prager and Daniel C. Drucker of Brown University, and a number of others. This recent, intense effort is really the second round for plastic design in steel. The first was 50 years ago, when concrete designers were beginning to show an interest in the ultimate strength theory. But because the great boom in steel-framed structures necessitated expediency, rather than sound engineering economics, the elastic theory, which offered quick development if not ideal solutions, became the accepted method of structural steel design. It was written into the building codes, accepted virtually on blind faith by the engineers until, as England's J. F. Baker says, "the engineer's structural sense had become almost atrophied."

Since 1943, in England, and for the past 11 years in the US, the plastic theorists have been preparing for this second thrust. This time, the attack is strong. Says Baker: "The only real choice is between plastic methods of design, which allow new developments, and the traditional quasi-elastic methods, which are so irrational as to allow virtually no scope for development."

The new confidence comes from two accomplishments: first, the theory has been reduced to simple analytical procedures; second, every factor which might limit the load-carrying capacity to something less than that predicted by plastic analysis has been investigated and safeguards have been formulated. This has come about in the US mainly through the program at Lehigh, which has been under way since 1946, under sponsorship of the Welding Research Council, AISC, Navy Dept., and American Iron & Steel Institute.

Development of the plastic theory has now completed its first important phase. Application has been worked out for the continuous beam and for one- and two-story rigid-frame structures. The second phase will extend the application to taller buildings. At present, columns must still be designed by the elastic method. Eventually, plastic design will be applied to both beams and columns, though no one will predict when this will happen.

It is a characteristic of plastic design theory that as a structure increases in design complexity, the advantages of plastic analysis increase comparably. For this reason, Phase II of plastic design development may yield greater benefits than are offered now. For example, the economies in materials and design time are now confined almost entirely to the structure's beams. As the theory is developed further, and as more is learned about such things as the action of columns subjected principally to axial load, then plastic analysis will have virtually universal application.

One almost inevitable effect of plastic design in building will be more extensive use of the welded rigid frame—more shop welding, with unusual combinations of rolled shapes.

But there remains one roadblock in the path of plastic design: the designer. And, indeed, there is some reason to suppose that he will be reluctant to change, unless he can be shown that plastic analysis is a straightforward

technique, unlike the cluttered, empirical elastic theory. With some designers, prejudices will fall hard, for these are the men whose work is based on simple beam design. They avoid the elastic theory and revert, instead, to a design method in which every force is statically determinate, i.e., simple beam design. For certain structures, of course, this is perfectly justifiable, but for others it leads to gross waste of material and, consequently, the worst possible design. Often, however, simple beam design is the one means by which the designer can meet his deadline.

To promote plastic analysis among engineers and architects, AISC this summer will issue a design manual in which the fundamentals will be presented. Also, the institute has teamed up with engineering schools to conduct some 30 conferences around the US to educate engineers and architects. In the schools, progress is being made. An increasing number include plastic design, both in undergraduate and graduate curricula.

The future

The great strides made in the new design theories in Europe are essentially due to Europe's economic necessity to make its materials, such as steel, go as far as possible. Thus, in England, where steel is not so abundant as in the US, some 200 buildings have already been designed and built by plastic design techniques. On the Continent, the ultimate strength theory in reinforced concrete has become an accepted technique in Germany, Austria, Czechoslovakia and the USSR. In the Western Hemisphere, the architects and engineers of Brazil are leading the way in design application of the ultimate strength theory.

As the same material shortages begin to plague the more wealthy and profligate US, there will be greater and greater incentive to a more economical use of materials, particularly the metals. This conservative inclination will become the theories' great ally.

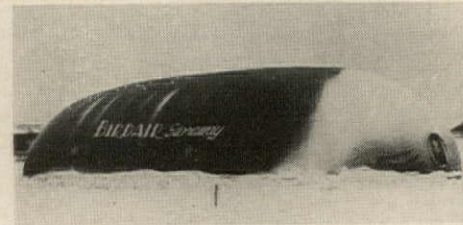
Pneumatic structures

These balloon shapes, which began as radomes, are rapidly inflating into novel and useful buildings

The weird balloonlike structures that have been rising since 1948 to house radar warning stations on such far frontiers as the Arctic Circle are now rapidly being domesticated in the US. They embody a new principle in building—the pneumatic or inflated structure entirely supported by air—which already is proliferating in many unusual ways.

A few previous architectural attempts had been made to apply the balloon or dirigible principle to earth-bound structures. But success had to wait upon the development of aerodynamic data and thin, strong, airtight materials to stand up to wind and weather. In 1946 a group of scientists led by Walter W. Bird of Cornell Aeronautical Laboratory, Inc., Buffalo, N. Y., contract re-

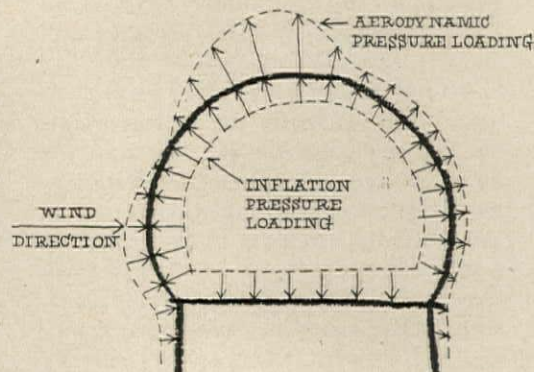
search affiliate of Cornell University, conceived the idea of light balloon structures in thinking over the problem of housing huge radar antennae in a way that would keep off the weather, yet offer no obstructions to radar waves. They proposed it to the Air Force's Air Development Center at Rome, N.Y., which, though skeptical, put up a small research contract. Nearly all the basic work and data from which the development has flowered, and continues to grow, stems from this collaboration between Cornell and the Air Force. They developed through subcontractors the exceedingly strong fabric membranes, chiefly of nylon and Dacron, coated with rubbery neoprene, vinyl and other synthetics newly available. Even more important, they con-



PROTOTYPE of inflated warehouse tested in Buffalo last fall by Designer Walter Bird. It withstands wind of 75 mph, 2' snow.

ducted the wind-tunnel tests, analyses and aerodynamic computations without which the whole project might have collapsed.

Their major discovery was simple. A slight difference of air pressure—as little as 0.65 lb. per sq. in. higher than the surrounding atmosphere—was sufficient to keep a spherical structure firm and rigid against a 200 mph gale. A simple industrial blower and control maintained the pressure. Domes are now designed to withstand 125 to 150 mph winds in a temperature range of -65° to 160° F. on about 0.1 lb. difference in air pressure. And well over 100 pneumatic radomes now stand, without ribs, struts, poles, girders or supports other than air, in wildly varying weather.



AERODYNAMIC PRINCIPLE of air-supported structures (shown above) was established in wind-tunnel tests by team at Cornell Aeronautical Laboratory Inc. under Aerodynamicist Walter Bird in 1948. Tests showed that wind forces up to 200 mph, which tended to rip up and belly inflated sphere (dotted lines), could be offset by internal air pressures only a fraction of a lb. per sq. in. higher than surrounding atmosphere. Left: one of over 100 inflated radomes in rugged duty on US northern frontiers.





AIR-SUPPORTED warehouse is kept up by large-volume, low-velocity blower (top), erected in less than a day by three men.



MEMBRANE WALL of same warehouse is translucent vinyl-coated nylon, developed by US Rubber, which has some 45 fabricators.

CID Air Structures, a leading promoter, has sold ten warehouses (some store 2 million lb. in 64,000 cu. ft. and cost about \$2,000).



AIR-INFLATED hut (above) is held up by inflated tubes rather than area pressure, developed by British Elliot Equipment Ltd.



ARCHES of 18" inflated tubes (bearing up to 2,000 lb.) form this double-walled shelter devised by Air Force and B. F. Goodrich.

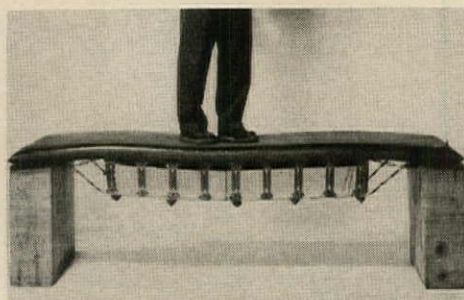
Almost from the start, Bird's group foresaw many possible applications of inflated structures to mobile and semi-permanent building. But military uses dominated all early work, and Cornell Aeronautical, being nonprofit, could not develop civilian uses. No one seemed interested. Early in 1956, Bird and associates withdrew to form Birdair Structures, Inc. to exploit these uses, starting with an inflated warehouse.

Activity promptly ballooned. Addison Brown, engineer and head of Calumet Industrial District Co., large warehousing operation, hearing of Bird's work, got fabric and advice from US Rubber and nimbly raised an airy warehouse in Chicago last fall, slightly ahead of Birdair's own prototype. Brown set up CID Air Structures Inc. to do a brisk business in inflated warehouses. Then US Rubber and one or two other basic suppliers, who had been doing research all along, got into the act. By 1957 there were some 50 fabricators, and the only worry was that hasty designs, not carefully calculated, might harm the new industry. For here was a structure easily portable, erected in as little as a day, covering possibly 100,000 sq. ft. or more at a cost of \$1 to \$1.50 a sq. ft., less than half the cost of any other temporary structure.

Meanwhile, details developed. Doors could be simple flaps or air locks or revolving doors. Structures could be held down by water tubes, sand bags or anchors (favored by Bird). A second type of structure appeared called air-inflated (as distinct from air-supported) in which inflated tubes form structural members over which fabric is stretched, requiring no air pressure in the enclosure, but sacrificing some stability. A promising development is a combination of the two—inflated double-walled membranes—of which the Goodyear "Airmat" is a beginning.

Inflated future

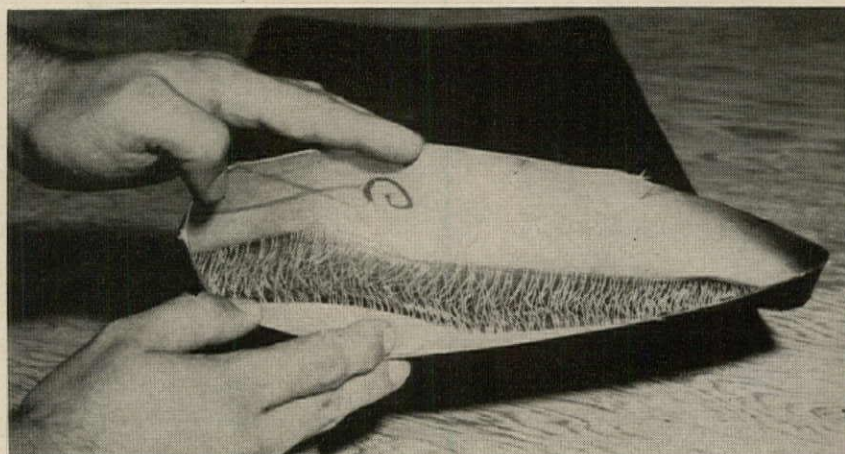
But the whole development is only at a beginning. Pneumatic structures not only supply large storage areas but are moving into display structures, exhibition halls, repair shops, and may provide huge economical roofs for stadia, auditoriums and the like. Transparent membranes, developing apace, may provide air-conditioned enclosures for year-around swimming pools, whole shopping centers. So far the biggest enclosure is a three-story military structure of 79,500 cu. ft., but larger ones are in the works. So far, membranes have a probable life of five to six years, but ten years is not beyond reason. The pneumatic structure may be more permanent than it looks.



INFLATED BEAM of double-walled Airmat structure shown below has high strength on only about 10 lb. of air pressure.

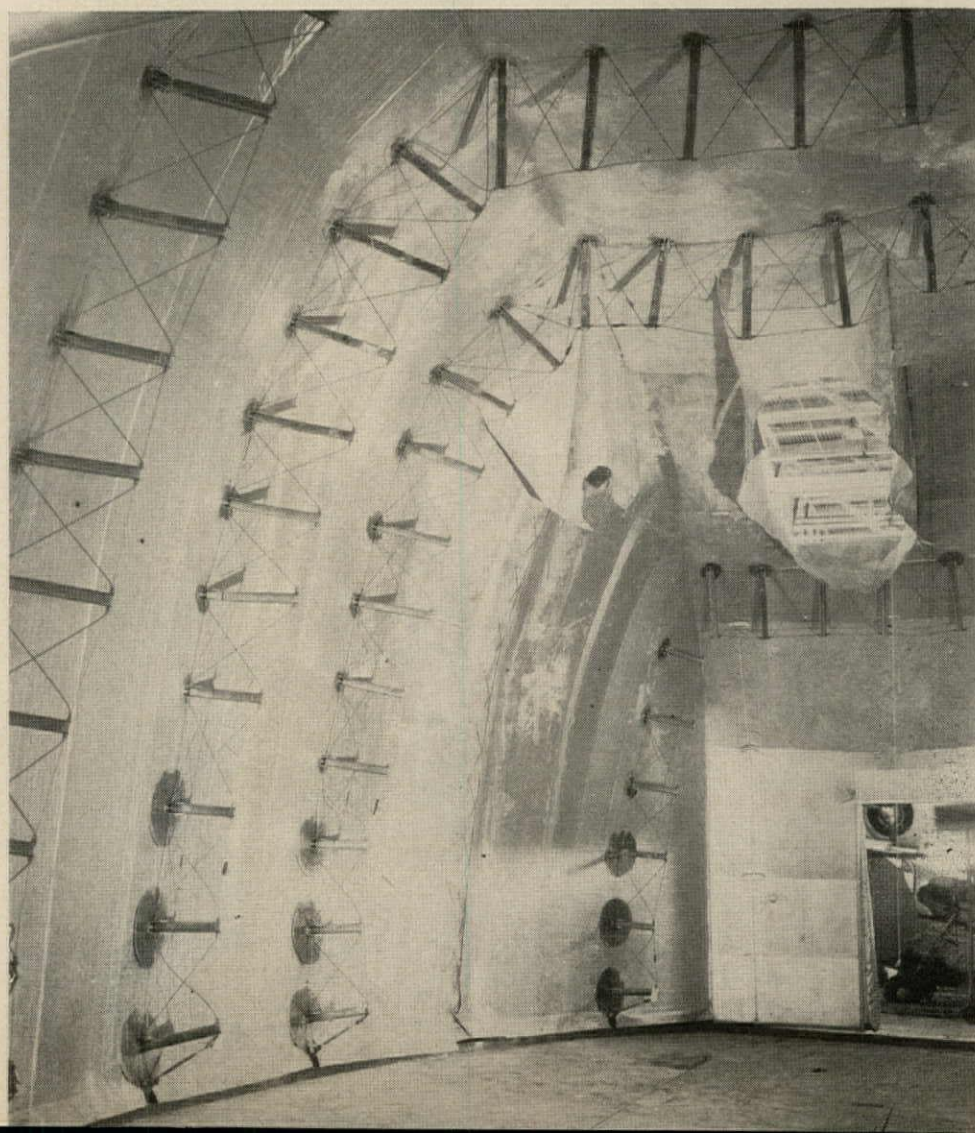


INFLATED AIRPLANE, built experimentally of Airmat fabric, deflates into a trunk. Inflated rotor blades are also in works.



AIRMAT, developed by Goodyear, is double layer of rubber-coated nylon with dropped nylon threads between for holding shape.

AIRMAT SHELTER (below) was developed to fit around jet-engine pods on B-36 for repairs. Aluminum braces add stiffness.



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Brief accounts of noteworthy developments

WEATHER TEST FOR ENAMEL

The National Bureau of Standards has completed a 15-year weather-exposure test of porcelain-enameled steels and made these important findings: 1) there exists a wide variation in weather resistance among different types of enameled steel. 2) Enameled steel can be so produced that it will show no significant change in gloss or color under severe exposure, including salt-air exposure. 3) Red enamels tend to be less stable than enamels of other colors.

At four sites—Washington, D.C.; St. Louis, Mo.; Lakeland, Fla.; Atlantic City, N.J.—Ceramic Engineers D.G. Moore and W.N. Harrison of the Bureau's enameled metals laboratory tested 14 basic types of enamel, on 768 panels. In their laboratory, they exposed an equal number of identical, but smaller samples to acid attack. Generally, they found that enamel compositions which have high resistance to attack by acid solutions are also resistant to weathering. (A few red enamels behave deceptively, resisting acid but not weather.)

The scientists observed also the enamel's effectiveness in preventing corrosion of the base metal. (On all samples, the base metal was enameled iron.) The finding: where the initial enamel coat covered all parts of the panel, no corrosion occurred, regardless of the type of enamel applied. On panels with only a single ground coat application on the reverse side, however, good coverage was not always achieved—especially where the panel had rested on support points during firing. Corrosion set in at these points and spalling of the enamel on the face side occurred after corrosion had progressed only part way through the steel. Spalling of this type was more prevalent under the corrosive salt-air conditions of Atlantic City than at the other three locations.

For architectural installations Bureau recommends the use of only those enamels rated A or AA by the Porcelain Enamel Institute's citric acid spot test.

THREATS OF OBLIVION

A pair of recent technological developments of quite independent origin

threaten to extinguish two sacred symbols of the Western World.

Development No. 1, by the laboratory scientists of the Inter-American Housing Center, in Bogotá, Colombia, is "a simple, hand-operated machine which turns out building blocks made of compressed soil and a little cement. No baking necessary." The obvious target: the adobe hut.

Development No. 2, by Canada's Dept. of Northern Affairs, on Hudson Strait, proposes abolition of the old-fashioned igloo. The department has tried out a new, plastic igloo: "dry, windproof, waterproof, and easier to keep warm than an ice igloo." Plastic consists of 6"-thick blocks which glue together.

ECONOMICS OF SEWAGE

Sanitation engineers are giving careful study to the stabilization pond, an inexpensive method of treating raw sewage. The pond is a shallow body, 2½' to 5' in depth. Sewage is treated by a natural biochemical action, principally by photosynthesis and the interaction of bacteria and algae.

In arid sections of the US, the stabilization pond has generally been used as a secondary or tertiary treatment unit, with one objective being salvage of water for irrigation. But from experience in some of the Northern Plains States during the past eight years, where more than 200 stabilization ponds have been constructed, it appears that this treatment system can work efficiently in all climates of the US, at a cost considerably below that of a conventional plant.

According to engineers of the Robert A. Taft Sanitary Engineering Center, in Cincinnati, which is a national laboratory, under the US Dept. of Health, Education, and Welfare, the stabiliza-

tion pond requires more land than does a conventional system. These engineers conclude that stabilization ponds will find their greatest applicability in the small community, where such advantages as lower construction and maintenance costs and simplicity of operation may be balanced against increased land requirements.

PLASTIC HOUSE UNDER TEST

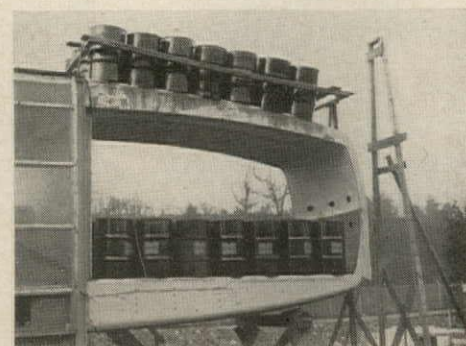
Disneyland's House of the Future (pictures), the experiment in plastics by Monsanto Chemical, has just gone through a series of rigorous tests in preparation for its public display in California.

Three M.I.T. professors who participated in the original design—A.G.H. Dietz, F. J. Heger Jr., and F. J. McGarry—performed the tests in Springfield, Mass., and reported in February to the Society of the Plastics Industry, Inc. that the tests had "done much to create confidence" in the X-shaped structure.

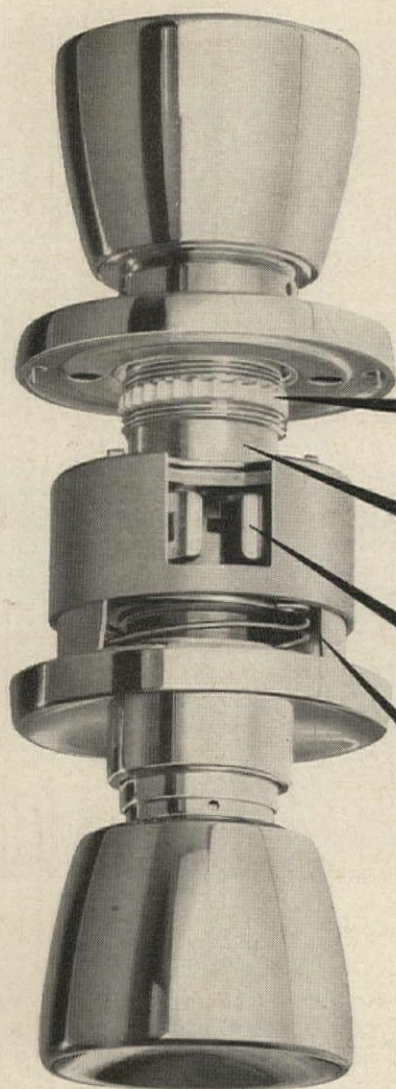
The four wings of the house (each of which represents one of the legs of the X) cantilever out from a 16'-square core. Each wing cantilevers 16', a considerable distance for any glass-reinforced plastic. In test, a cantilever was subjected to both static loads and thermal loads (hot water spray). Static loads, up to twice design capacity, were imposed on floor (110 lb. per sq. ft.) and on roof (80 lb. per sq. ft.). Thermal loads, by hot water sprays which raised section temperatures quickly from 34° F. to 114° F., produced stresses of considerable, though allowable, magnitude at certain points.

Behavior under test, say the designers, confirms design calculations, but final proof of this unique structure "will be established only by its service performance."

PLASTIC HOUSE at Disneyland confirms design calculations under loading and thermal tests by M.I.T. engineers. Floor shown at right carries 110 lb. per sq. ft.; roof, 80 lb. per sq. ft.



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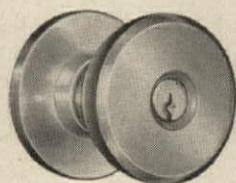
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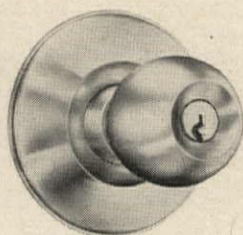
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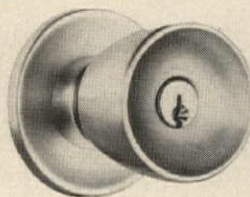
designed by the leaders in lock science...



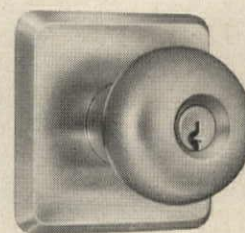
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MERCURY design



TULIP design



HANOVER design

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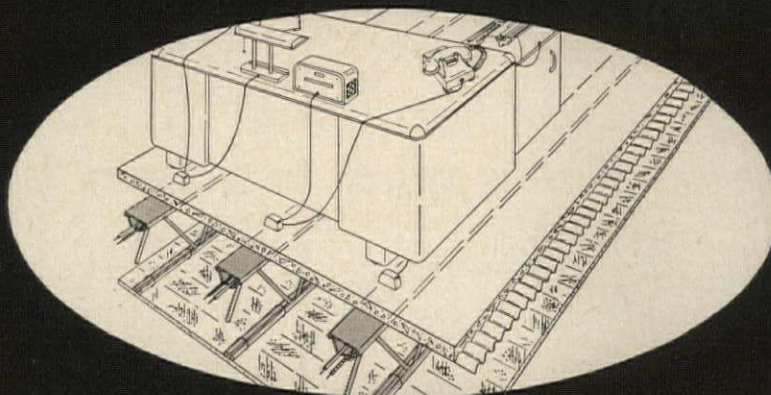
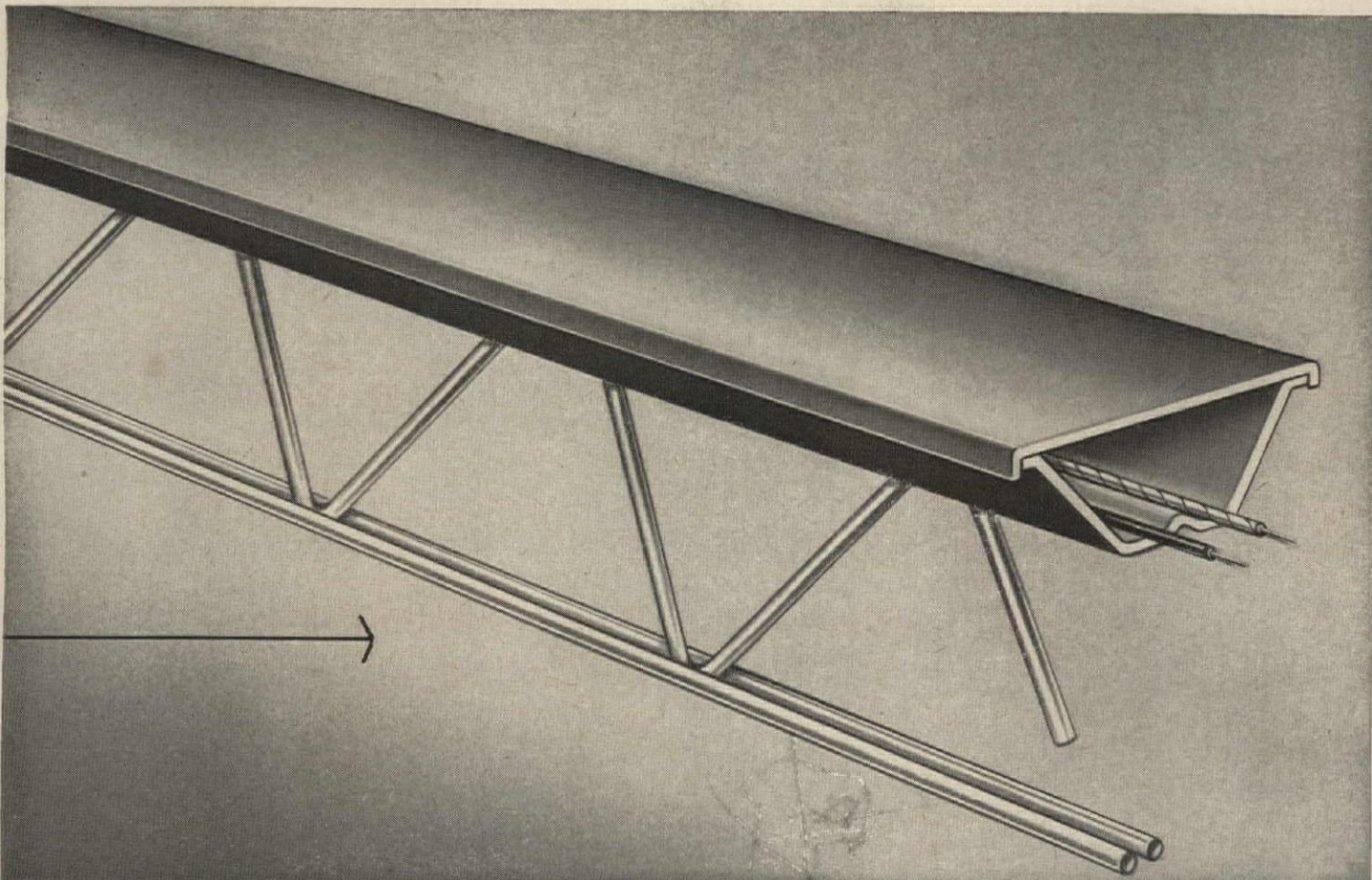
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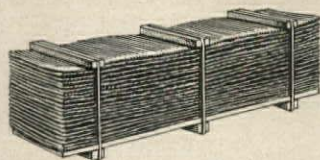
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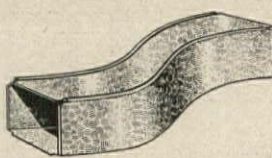
A.I.S.I. for light gauge structures, dated January, 1949.



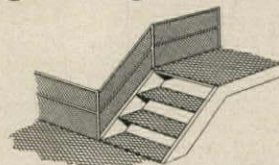
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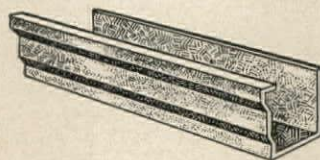
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Marmet engineered sash and custom type aluminum windows provide unlimited scope in window treatment to implement architectural ingenuity. Made of the finest extruded aluminum alloy. Marmet windows are electrically welded with hairline mitres and constructed with the closest attention to details. Extra etching time in the world's largest dip tanks assures uniform satinized or aluminized finishing of striking beauty that will not discolor for the life of the window.

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Series 200 ribbon windows as used in the Linden School, have a continuous head and sill, providing an unbroken sweep that contributes to the simplicity of design. Special vinyl plastic weatherstripping, aluminum or fiber glass mesh screening and aluminum sash are all available as specified.

Marmet's precision aluminum fabricating is available in two series of ribbon windows, curtain wall, two architectural projected series, a custom line of windows, standard and custom entrances, glass block ventilators and aluminum doors. To assure successful execution of any plan . . . in window strength and lasting beauty . . . specify MARMET!

light and air to learn by
admitted through
MARMET aluminum ribbon windows



SERIES 200

Linden School
Malden, Mass.
Architect:
Edmund I. Leeds
& Associates
Boston, Mass.

For detailed information and specifications on the complete line of MARMET windows—consult Sweet's Catalog, File No. 17a . . . or write to the MARMET Corp. for Catalog 57-A.

MARMET

CORPORATION

302d Bellis St., WAUSAU, WIS.

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OFFER SAVES \$2.00!**

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TRI-POINTER
Ideal for mechanical draftsman clutch-type pencils!

A standard drawing board necessity!! Coded nozzles for instant selection of 3 points: needle, medium and blunt. No graphite "sprinkles." Special cleaning pot keeps drawing board, hands and work clean.



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Please rush to me One (1) Tri-Pointer @ \$5.95 special, plus One (1) Free Replacement Kit. Check or money order — no C.O.D.'s or cash, please. We will prepay.

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Butt-Weld • Trussed Design

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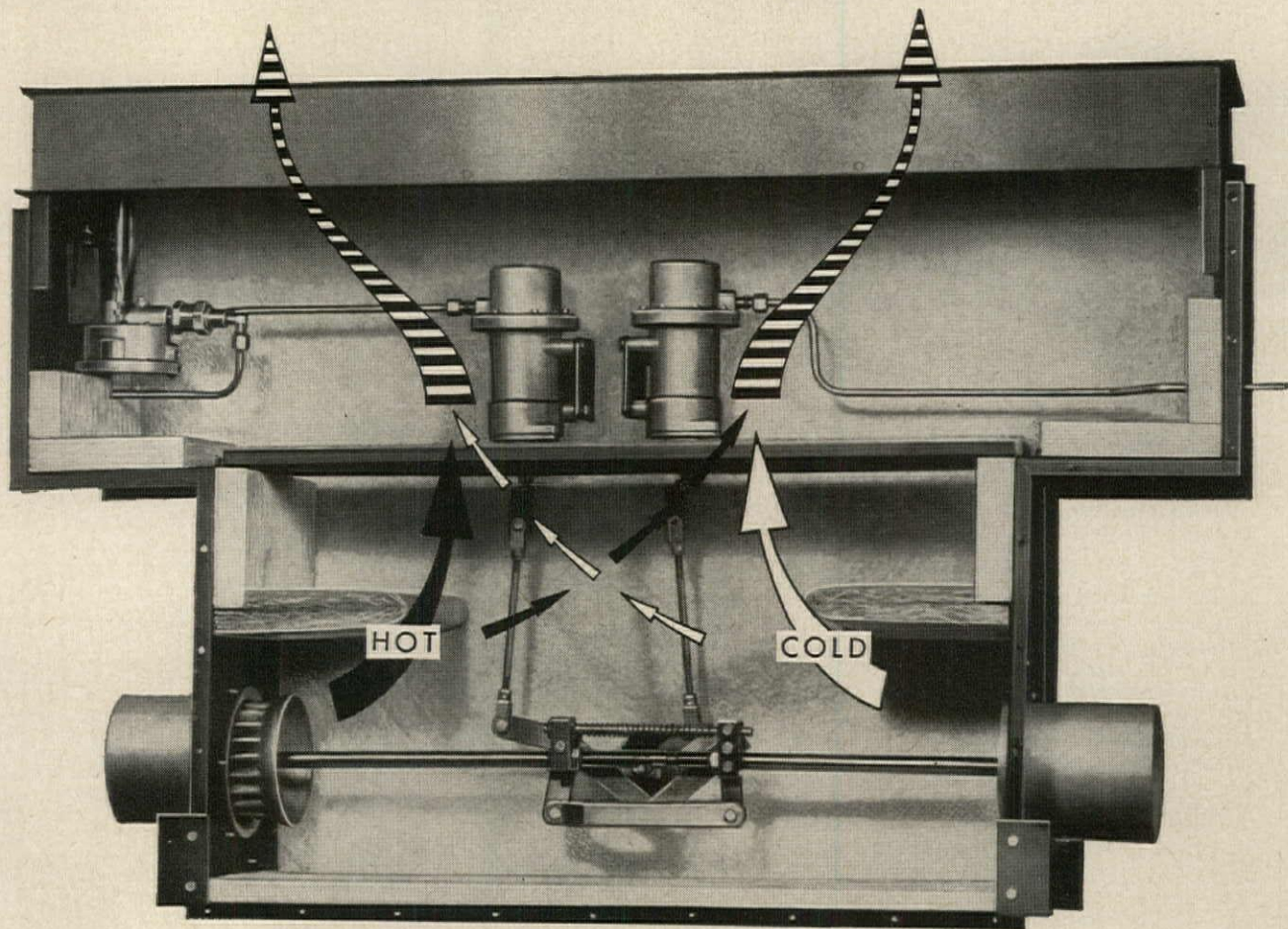
**Rigid Backbone of Steel
for EVERY Masonry Wall**

Dur-O-wal Div., Cedar Rapids Block Co., CEDAR RAPIDS, IA. Dur-O-wal Prod., Inc., Box 628, SYRACUSE, N.Y. Dur-O-wal of Ill., 119 N. River St., AURORA, ILL. Dur-O-wal Products of Ala., Inc., Box 5446, BIRMINGHAM, ALA. Dur-O-wal Prod., Inc., 4500 E. Lombard St., BALTIMORE, MD. Dur-O-wal Div., Frontier Mfg. Co., Box 49, PHOENIX, ARIZ. Dur-O-wal, Inc., 165 Utah St., TOLEDO, OHIO

How **ANEMOSTAT**[®]

All-Air Constant Volume

High Velocity units operate



Here is a vitally important advance in the field of air distribution. Anemostat All-Air High Velocity units, *with new simple automatic controls*, deliver constant volume, no matter what the fluctuations from 1:4 or 4:1 on inlet pressures of either the hot or cold valve.

Each unit is a single package including the controls and integral thermostats, if required. There is complete accessibility of all controls through removable diffusers. No access panels are required. Capacities of CONSTANT VOLUME units can be pre-set at the factory.

These Anemostat CONSTANT VOLUME units

- Assure scientific draft-free distribution of air.
- Are available in 100% induction units.
- Include Anemostat die-cast metal rocket-socket valves. More than 50,000 of these valves are in service, and not a single one has needed maintenance.

- Operate on standard 15 lb positive acting compressed air systems.

Each unit contains a micropressure regulator in the box, sensitive to .02 static pressure. This in turn operates a pneumatic motor and independently maintains by adjustment constant volume, while the wall mounted or integral thermostat controls the outlet mixture temperatures.



Write on your business letterhead for your copy of

New Anemostat Selection Manual 60

*to Anemostat Corporation of America,
10 East 39 Street, New York 16, N. Y.*

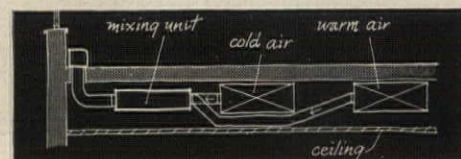
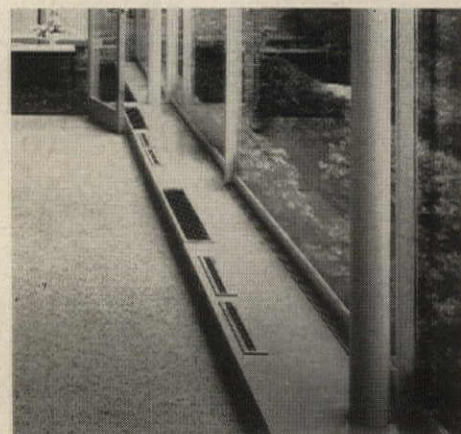
ANEMOSTAT: The pioneer of All-Air Velocity Systems

Isolated double glazing ... concrete cutting torch ... wall-hung furniture ... a review of new developments

DUAL GLAZED SLIDING DOOR isolates frame to prevent heat flow

Although the metal frame of a sliding door or window takes up a small area in proportion to the glass, conduction through inside and outside members can be more than a sweating nuisance; it can undermine the insulation value of double glazing. Ador Sales, Inc. recently accomplished what some sliding door fabricators had been saying could not be done: complete isolation of interior and exterior aluminum sections with no concession to structural stability. The cause of condensation—

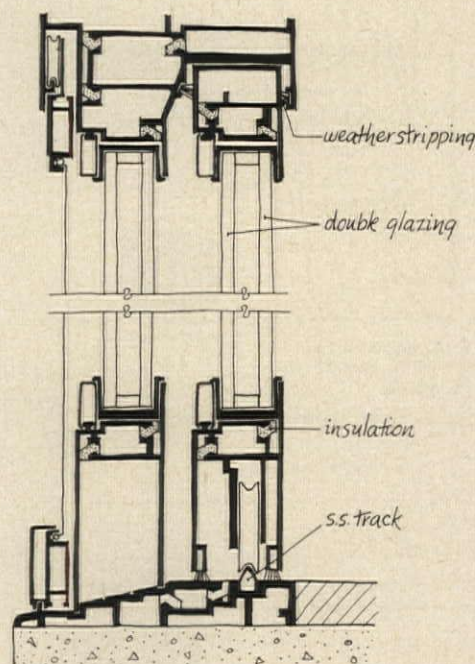
warm air hitting a cold surface—is thereby eliminated and with it, steamed-up trickling windows. Practical for Northern US climates where temperatures go below 32°, Ador's *Thermo Insulated* door is made in sizes to accommodate standard 1" *Thermopane*: 6'-6" x 6'-10"; 8'-6 1/4" x 6'-10"; 10'-6 3/4" x 6'-10". Prices start at about \$230. In addition to the internal gaskets, double weatherstripping is applied to seal out rain and wind. The framing, extruded of tempered aluminum alloy, is given a durable alumilite finish. *Manufacturer: Ador Sales, Inc., 2345 W. Commonwealth Ave., Fullerton, Calif.*



ALUMINUM MIXING UNITS produced for dual-duct air systems

Weighing one-third as much as sheet metal units, Buenson Stacey's new aluminum air-mixing chambers are easy to ship, install and maintain. The shallow 10" x 18" x 32" mixing units are made for placement under window or wall mounting as well as the conventional ceiling for interior building area mounting. In the reception room above an overhead unit was put in the floor and 3"-high headers placed along the glass window wall. Each of the V3 air mixers contains a compressed-air operated valve and automatic volume controller. As the heated and cooled air enters the plenum through separate narrow ducts, the amount and temperature of the flow are regulated mechanically according to the present valve nut and room thermostat. The units contain no coils, motors, fans or water piping. The manufacturer claims that installed costs

continued on p. 172



Could this
happen to
YOUR
FLOORS?

ELIMINATE

**FLOOR
BUCKLING**
with ...

Premoulded Membrane

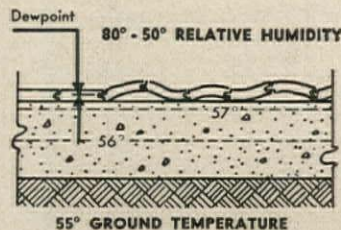
TRADEMARK

the industry's only **TRUE** vapor seal ...
and

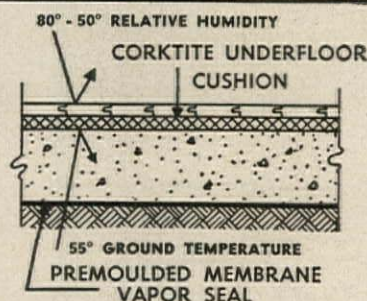
CORKTITE floor cushion.
TRADEMARK

The installation of wood flooring on grade or subgrade slabs presents certain problems. The movement of free moisture and vapor transmission, from the site, through the slab and into the structure must be prevented. A "stacking of humidity" can raise the humidity to a level where a dewpoint can readily occur within the floor itself ... buckling and rotting quickly follows.

Eliminate the two avenues of moisture migration by installing the following ... first, "Premoulded Membrane" vapor seal should be installed directly over virgin, hard tamped grade or fill material to isolate the slab from moisture and vapor originating in the soil. "Premoulded Membrane" has a vapor permeance of .0066 grains per hour; is resistant to rot, mold and termites; is strong enough to withstand the pouring of aggregate and normal on-the-job abuse without puncturing; expands and contracts with the slab without breaking the seal; provides a monolithic vapor seal with mechanically sealed joints. Next, Corktite, the impermeable, resilient insulation with a thermal resistance of .48 BTU or less, should be installed as an underfloor cushion between the slab and finish flooring ... this prevents a dewpoint within the floor and eliminates deterioration by condensation or ground moisture.



Construction without Vapor Seal or Underfloor Cushion—Active dewpoint causes rotting and buckling.



Construction with Vapor Seal and Underfloor Cushion—floors retain stability, dewpoint cannot be reached.

see our catalog in



or write for copy

Write today for complete information and your set of "Tech-Tips."



PRODUCTS FOR
BETTER CONSTRUCTION

W. R. MEADOWS, INC.

6 KIMBALL STREET
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W. R. Meadows, Inc.
Kimball St., Elgin, Illinois
Gentlemen:

☐ Send me complete information and "Tech-Tips."

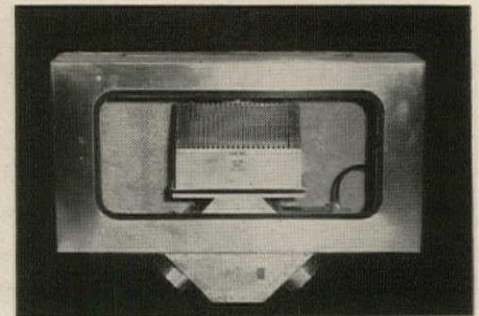
☐ Have representative call.

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FIRM _____

ADDRESS _____

CITY _____ STATE _____



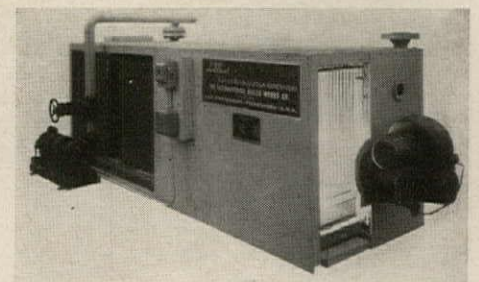
run about 10% less than air-induction systems.

Manufacturer: Buensod Stacey, 45 W. 18th St., New York 11, N.Y.

HOT WATER GENERATOR

handles 80° temperature differential

The rapid acceptance of high temperature water (HTW) systems (AF, Jan '56) and their proved economy for groups of buildings encouraged International Boiler to make up this baby LaMont HTW generator of one-building capacity. The small-pipe low-pressure system may very well have the impact on wet heat for office buildings, hospitals and schools that high-velocity ducts have had on air conditioning. Enough installations have been made in the past ten years on a grand scale (by directive, all US Air Force bases are designed with HTW systems) for some pretty positive cost figures. International's engineers report savings of 15 to 18% in installation compared to high-pressure steam, up to 20% in operating and about 50% in maintenance. Traditionally single buildings using hot water systems maintain a 10° to 20° difference in water temperature as it leaves the boiler and



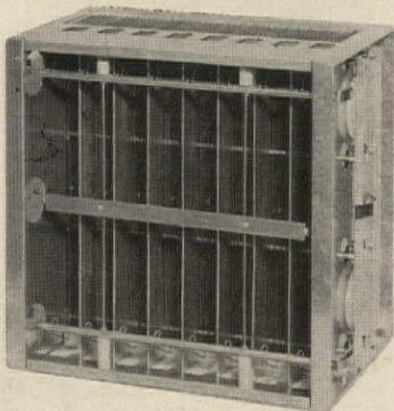
comes back. The higher differential of 80°—and more—allowed by the LaMont HTW generator reduces the flow rate in direct proportion, and with it the pipe sizes and pump horsepower. Thus the conventional system requiring 2 million Btu capacity might use an 8½ hp pump and 6" pipe; the same heating results could be attained through HTW with a 2.1 hp pump and 3" pipe. The new 2 million Btu/hr. forced circulation boiler stands only 4' high, 4' wide and 10' long. Designed for pressures of 900 psi it makes water temperatures of 500° available. Other units of 1 million to 10 million Btu/hr. rating will be made by International. To prevent any thermal shock from cooler water, flue gases pre-

heat the return water before it reaches the radiant wall sections. Differentials up to 200° are not only possible with the *La-Mont* boiler, but economically advisable for *HTW* service.

Manufacturer: International Boiler Works Co., E. Stroudsburg, Pa.

ELECTRONIC AIR CLEANER made in same sizes as panel filters

Since its invention 24 years ago, the electric precipitator has been one of the most effective devices for extracting smoke and dust particles from city and industrial air. To meet current installation and operating cost competition from mechanical filters and make its 85 to 95% efficient units maintain capacities in high velocity systems, Westinghouse has given the *Precipitron* a radical overhaul. The new model, sized to correspond with other air-conditioning components, can be set in the ductwork almost as easily as a panel filter.



A high-voltage busbar connects all collector cells so that instead of wiring them individually the electrician makes one simple connection. The higher charge permits an increase in air velocity from 330' to 600' per minute. A cold water adhesive which is reapplied to the collector plates automatically at preset intervals makes hot water unnecessary for flushing away the dirt. Unit cost per cubic foot of air on older units ran about 20¢; on the new one, 14¢.

Manufacturer: Westinghouse Electric Corp., Sturtevant Div., Boston 36, Mass.

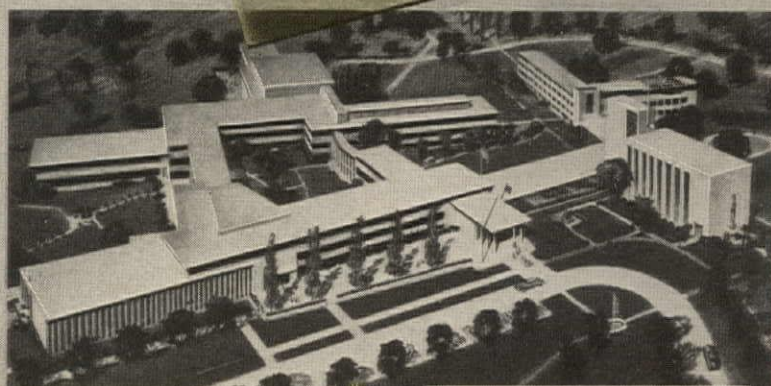
PINHOLED PAN FORMS plied from concrete by shot of air

Instead of prying these steel ceiling forms loose with a crowbar, a workman releases them with an air hose. A hole in the center of each 3' square dome is capped before the pour to create a small vacuum. After the wood centering is dismantled, a short shot of air lets the 40 lb. pan drop down into the waiting arms of a workman and leaves the concrete surface smooth and free from chips or bar scars. The forms need no cleaning and can be moved to another part of the project for immediate re-use. Especially practical on jobs calling for exposed concrete ceilings, *Steel-*

continued on p. 174

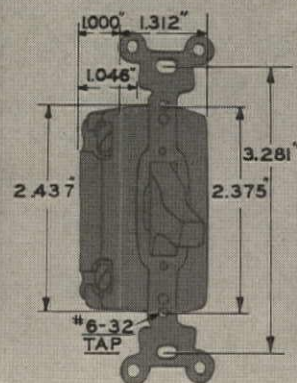


**IT PAYS
TO HAVE GOOD
CONNECTIONS**



**ST. XAVIER LIBERAL ARTS
HIGH SCHOOL**
Chicago, Illinois

ARCHITECTS-ENGINEERS
Naess and Murphy
ELECTRICAL CONTRACTOR
Emerson Comstock Co., Inc.
HUBBELL SUPPLIER
Englewood Electrical Supply Co.



Cat. No.
1221
20 amp.
120-277 volt
AC Switch

Dependable AC switch control is of vital importance in any fluorescent lighting installation where high levels of illumination require a large number of fixtures operated at full rated capacity. As in the beautiful school plant above, Topper AC quiet action switches are the ideal choice because they are designed to control many more fixtures than conventional switches, thus permitting control of *more fixtures with each switch*. Operation of heavier circuits (and fewer of them) results in lower wiring costs. Remember, too, that Topper switches are shallower, take up less room and are easier to install.

Detailed information on request

**HARVEY
HUBBELL, INC.**

BRIDGEPORT 2, CONNECTICUT

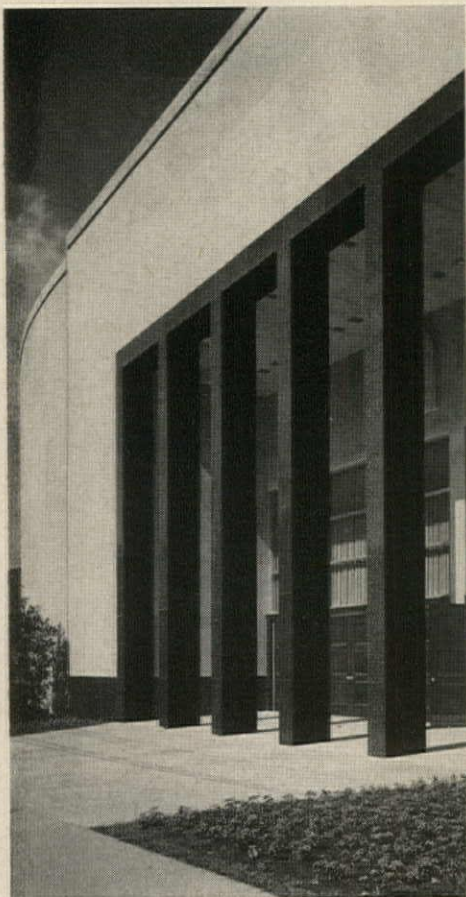
QUALITY WIRING DEVICES

**FACTORY WAREHOUSE
LOCATIONS ASSURE
NATIONWIDE STOCK
AVAILABILITY**

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Products

cont'd



The Washington Hebrew Congregation's Temple is served by Altec Lansing

The home of the Washington Hebrew Congregation is a building of striking beauty and simplicity . . . one of the most imposing houses of worship in the nation's capital. The Temple itself, the Social Hall and the Library are served by public address equipment by Altec Lansing.

The Blue Book of Satisfied Altec Customers lists the newest and finest public buildings, hotels, department stores and schools. Carefully engineered and installed by an Altec Lansing engineering contractor, Altec Lansing equipment insures performance of the highest quality and long years of trouble-free service.

See our catalog in the Architectural File (32a/AL) and in the Industrial Construction File (12j/AL) of Sweet's Catalog or write Dept. 4F.



A SOUND
REPUTATION
SECOND
TO NONE

1515 S. Manchester Ave., Anaheim, California
161 Sixth Avenue, New York 13, N.Y.

dome units butt neatly together along the flanges. Depths range from 8" to 14" and the void is 30" square. The cost advantage, Ceco points out, for the acoustic waffle-type ceiling with its two-directional joists and wide spans is that it saves about 30% in materials compared to flat plate construction. Cost of the ceiling averages about \$1.75 a sq. ft. in place.

Manufacturer: Ceco Steel Products Corp., 5601 W. 26th St., Chicago 50, Ill.



AIR HAMMER JACKET muffles steel drill's gadatat

Zippering cozily around the Thor 80 lb. paving breaker, this new muffler converts the tool's sharp and incessant raps to muted thuds. The casing, designed to fit the Model 25 air hammer, is made up of two separate sound deadening coats which reduce the vibration racket and exhaust



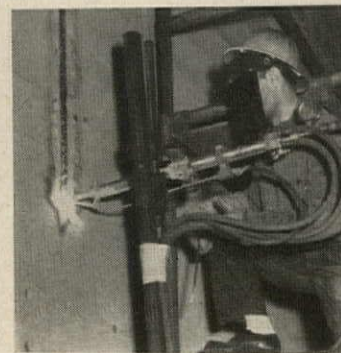
noises by about 55%. The muffler sells for \$35. Already useful in road rebuilding and concrete foundation removal work, the Thor hammer in its acoustic attire should be more socially acceptable to downtown office areas, hospital zones and to its operator.

Manufacturer: Thor Power Tool Co., 175 North State, Aurora, Ill.

FLAME BLOWPIPE cuts through reinforced concrete

Slicing thick concrete with the ease of a warm knife through butter, Linde's pow-

der-fed flame cutter is a refined destructive tool with a constructive future. Originally developed to cut stainless steel, the metal burning apparatus has been used experimentally in the past few years for demolition work on concrete structures. The method proved fast and economical and so Linde is now marketing the apparatus as a \$500 to \$1,000 package for cutting concrete. Eliminating the noise and side effects of jackhammer or dynamite, the tool should get wide use where mechanical demolition is too expensive or blasting is injudicious. Two types of metal burners are available: the blowpipe, for concrete up to 18" thick, and the lance for concrete of any depth. Both consume iron and aluminum powder and oxygen as fuels and reach flame tem-



peratures of 4,500° F. The blowpipe is similar to the oxyacetylene torch used in metal working, but has a nozzle which broadens the angle between the oxygen cutting stream and powder injection flow to make clean accurate kerfs on both horizontal and vertical planes. Its cutting speed is about 1½" to 2" a minute regardless of concrete thickness. (Because of proportionate increases in gas volume and fuel, it takes only a little longer to cut through 8" of concrete than 4".) Steel reinforcement imbedded in the concrete masonry does not impede the melting action; in fact, it literally adds fuel to the fire. The lance, which was used to pierce a 12' thick concrete wall for a pipe line, burns as extra fuel the black iron pipe that carries the metal powder and oxygen into the cut. Some projected applications for the apparatus seen by Linde engineers:

In new building, simple concrete forms could be used to make uninterrupted wall

continued on p. 176

THE MARK OF QUALITY

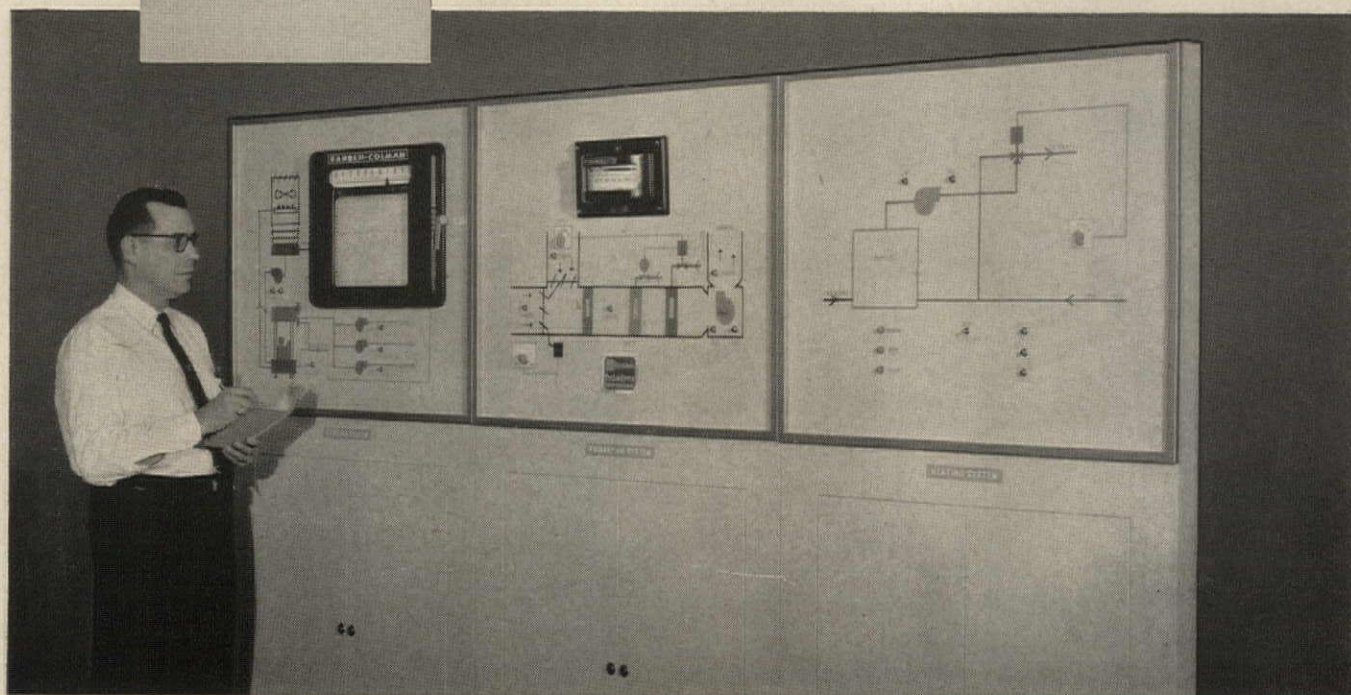


Electronic Control Centers

1- provide visual supervision of entire heating and air conditioning system and other mechanical or electrical functions

2- provide automatic control

3- reduce installation and operation costs



The most advanced *and* most practical control system for buildings today is the Barber-Colman "Electronic" CONTROL CENTER.

It is a system that provides the central location of "Electronic" components to automatically control and synchronize automatic heating, air conditioning, and many other functions of a building's mechanical and electrical systems. Being custom designed and prefabricated as the nerve center of the control system, a CONTROL CENTER cuts installation costs and adds many new and desirable features.

For the heating and air conditioning system, CONTROL CENTERS may incorporate, as illustrated above, schematic illustration for visual supervision . . . remote control point adjustment of space, duct and flow temperatures . . . and remote temperature indication and recording for reporting and compiling a record of the system's perform-

ance. Engineers and architects, who know, have come to recognize the "Electronic" CONTROL CENTER as a complete control package that will improve the performance of any air conditioning system and many other types of mechanical and electrical equipment. Saves time in both supervision and maintenance.

Contact your nearby Barber-Colman Field Office for details. Remember that only Barber-Colman combines skills in both air distribution and automatic controls for *undivided* responsibility.



ELECTRONIC CONTROL CENTERS BULLETIN

Write for this eight-page color brochure giving detailed information on applications, advantages, functions, and design. Contains photos, drawings, typical schematics, suggested specifications. Write for your free copy of F-8031.

BARBER-COLMAN COMPANY

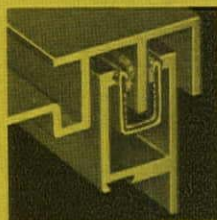
Dept. P, 1335 Rock Street, Rockford, Illinois • Field Offices in principal cities

Automatic Controls • Air Distribution Products • Small Motors • Industrial Instruments • Aircraft Controls • Electrical Components • Overdoors and Operators • Molded Products • Metal Cutting Tools • Machine Tools • Textile Machinery

As people judge a car by the "feel" of its doors... So is a building often judged by its sliding glass doors

To an ever-increasing degree in home and commercial building, *the quality of the sliding glass doors symbolizes the quality of the entire structure.* For this reason, more and more architects and builders are selecting Miller quality sliding glass doors. Visually, a beautiful focal point; structurally, there's durability and quality in every detail. For single and/or dual glazing.

Below: Miller's engineered method of using silicone-treated double seal wool pile provides maximum weather protection in all climates.



Miller

There's sales sense in Miller sliding glass doors

Write for literature and Dealer's name
for the 3 complete lines in aluminum and steel.

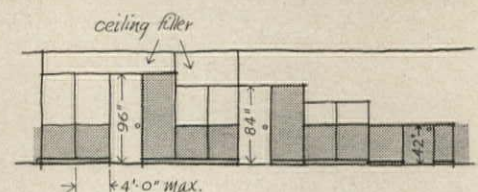
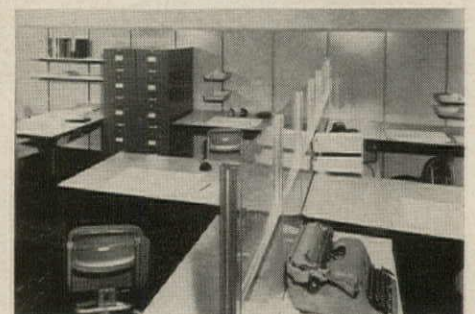
Frank B. Miller Mfg. Co., Inc.
3216 Valhalla Dr., Burbank, Calif.

and then doors and windows carved out afterward. In remodeling work, breakthroughs may be made in existing masonry walls without damage to the rest of the structure. The flame cutter can also be used for rough quarry work. One hazard of the process: floors must be shielded with dry sand or asbestos from the intensely hot slag produced.

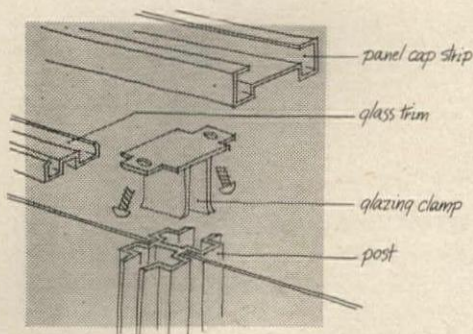
Manufacturer: Linde Air Products Co., Div. of Union Carbide and Carbon Corp., 30 E. 42 St., New York 17, N.Y.

OFFICE PARTITION supports furniture on brackets

The *Workwall's* unique genealogy can be traced from store to house to office interiors. Originally designed as a self-supporting display framing for attaching merchandise, brackets, shelves and gim racks (AF, April '54), the rugged U channels were picked up by a prefab homebuilder who worked out a modest, useful interior wall combining them with flush panel



doors. Now the manufacturer has developed four basic groups of office partitions ranging from hip to ceiling high. Members are extruded aluminum, anodized natural or brass color. Single U channel panels can be mounted on existing walls; doubled-up channels stand free to support not only the panels between them but all manner of office furniture and paraphernalia: in and out boxes, book racks, flower vases—even desk tops, coat racks and cabinets. Everything goes on and comes off with a screwdriver. Light fixtures can be attached and wired through the capped



channels down to an electric raceway installed along the baseboard. Sound-insulated sandwich panels are $1\frac{3}{4}$ " thick and can be ordered 2', 3', 4' wide with semi-gloss plastic faces in several colors and simulated wood grain, in combinations of solid panel and glass. Price of *Workwall* ranges from about \$2.50 to \$3.50 a sq. ft., depending on height and materials selected. Accoutrements are extra. Panels lock into the posts via sleeve grips which hook over connecting keys on the upright. Individual sections can be removed or replaced with a prehung door without disturbing adjoining panels.

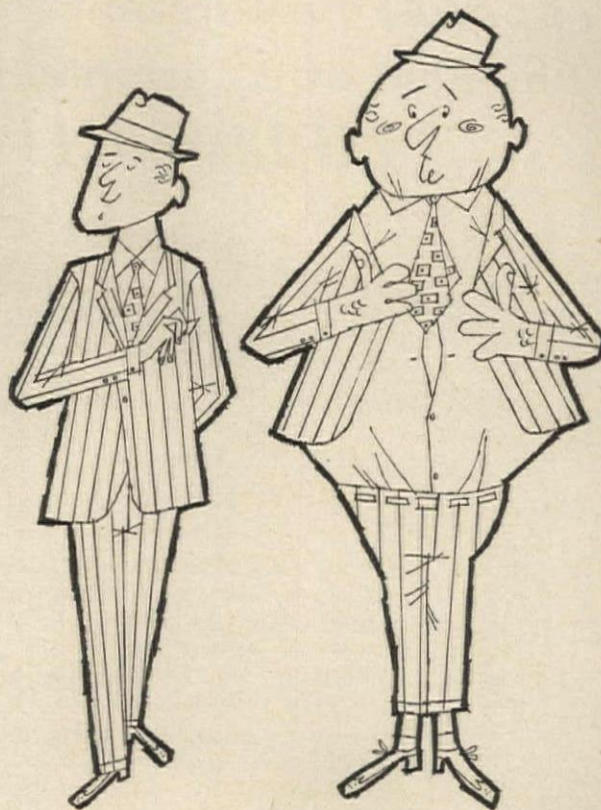
Manufacturer: L. A. Darling Co., 606 N. Matteson St., Bronson, Mich.

WOOD SLAT SCREEN coils to slides across 130' opening

The Cookson Co., fabricators of flat-slat aluminum roll-up doors and grilles, are aiming a big sidewinder at the school market. The company's hardwood slat partition, suitable for gyms, cafeterias and multiuse rooms, is made for openings up to 22' high and 130' wide, and draws to one or both sides. (Maximum width for a single door is 66'.) The 1" x 2" strips, fabricated of kiln-dried fir, redwood or cedar, are tongued and grooved with a neat V groove on the face. To prevent the slats from separating or pulling out of line in coiling, spring steel ribbons are riveted to the upper and lower ends. The transmission system for either the crank or power models has only two moving parts which wind and unwind the tambour doors at constant speed on quiet nylon rollers. The upper track can be recessed or mounted below the ceiling or alongside the lintel; the ball-bearing mounted rollers compensate for ceiling deflection. Neoprene nosings on the aluminum meeting stiles as-



continued on p. 178



The suit that fits Smith —might not fit Jones

An organization looking for a new plant site has certain requirements in mind having to do with factors such as materials, labor, utilities, and so on. But—a site "made to order" for one company might fall short of suiting another.

That's why we suggest you give consideration to the "Union Pacific West." In such a vast area it's practically a certainty you will find a location to fit your specific needs.

There's one sure thing. Any site on or near Union Pacific trackage has one of America's finest transportation services at its doorstep.

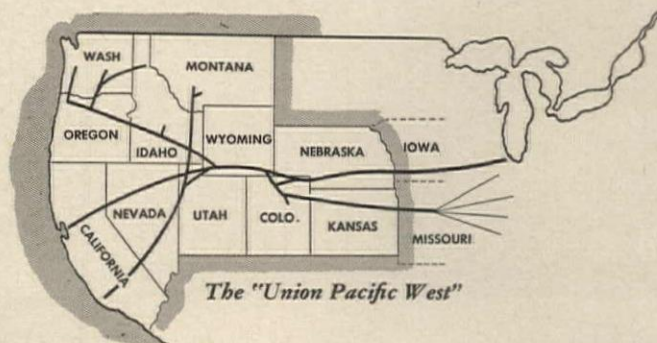
• • • • •

For complete and confidential plant site information, phone your nearest U.P. representative or contact us direct.

INDUSTRIAL DEVELOPMENT DEPARTMENT

UNION PACIFIC RAILROAD

Omaha 2, Nebr.



"REPEAT performance"
because of its original
PERFORMANCE!



The pre-war Chicago Wesley Memorial Hospital (shaded part of photograph below) was Clow-equipped. Installation proved fast and economical. Through the years, Clow I.P.S. (threaded) Cast Iron Pipe has cost Wesley nothing for upkeep, nothing for replacement.

Naturally, when the \$5,500,000 fifteen-story addition was planned, Clow was called on again for all downspouts, vents and waste lines 3 inches and larger. The architects, engineers and contractors all know that Clow I.P.S. (threaded) Cast Iron Pipe is corrosion-proof; lasts the life of the building; is quickly, economically installed; *never* needs replacement; requires no maintenance.

Clow I.P.S. (threaded) Cast Iron Pipe has same O.D. as steel pipe, is available with plain or threaded ends, in 3, 4, 5, 6, 8, and 10" sizes in 18' random lengths.

*Iron Pipe Size O. D.

Chicago Wesley Memorial Hospital (ADDITION)

ARCHITECT:
Fugard, Burt, Wilkinson & Orth
CONSULTING ENGINEER:
A & T Engineering
PLUMBING CONTRACTOR:
Great Lakes Plumbing & Heating Co.



JAMES B. CLOW & SONS, Inc.

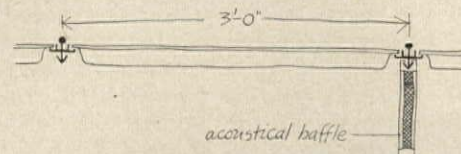
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Wholesalers of Plumbing
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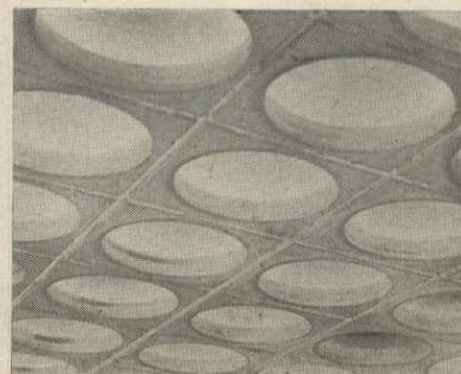
sure a finger-safe and as well as sound-tight closure. Price for the side-coiling doors ranges from \$5 to \$8 a sq. ft. depending on size and installation requirements. *Manufacturer:* The Cookson Co., 1525 Cortland Ave., San Francisco, Calif.

LIGHT PANEL CEILING makes gay use of color and baffles

In the *Sylva-Lume* modular lighting system developed by Peter Muller Munk and Sylvania, the functional elements of light diffusion and sound control become decor



motifs for the architect to arrange and interchange. Stating at the ceiling's debut that "lumens alone do not make for happiness," and that "some modern interiors provide the atmosphere of operating rooms," Industrial Designer Muller-Munk proposed this lighting and acoustic grid as a means of bringing glamour up to ceiling level. The parts in the system are in themselves simple and can be used tastefully in infinite variations for stores, offices and schools. The basic, but unseen element is the outrigger fixture—a large *H* mounting frame for the bare lamps. It is made in 6' or 8' lengths and can be used for 4' or 8' fluorescents. Softly visible are the 3' square concave vinyl diffusers. These are produced in three patterns in pastel colors and white. They can be used singly or in double fused layers for sound control sans baffles. An arrow-shaped aluminum grid supports the plastic diffusers and the

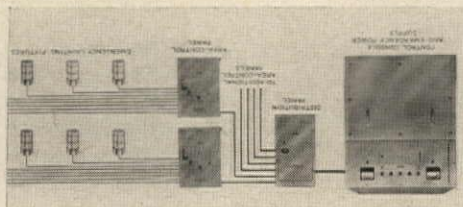


5"-deep acoustic wedges which are snapped on in straight runs or box patterns. Realizing that not all interiors conform to a strict 3' module, Muller-Munk proffers, as an optional accessory, a flat steel perimeter filler panel to meet the walls. These strips are perforated in a casual Swiss cheese pattern. Cost of the system is \$2 to \$3 a sq. ft. in place.

Manufacturer: Sylvania Electric Products, Inc., 1740 Broadway, New York 19, N.Y.

EMERGENCY LIGHTING designed as complete built-in system

Realizing that emergency lighting for a school, hospital or theater is only as good as the immediate working condition of each and every lamp, Standard has made its built-in system practically tamper-proof. Not only will lights and buzzers on a power console report any mechanical fault, but the central control screams alarm even if a bulb is snatched from a socket. Approved by Underwriter's and exceeding the National Electric Board requirements, the self-monitoring system matches its safety features with design sensibility. The central console is set up in a room away from potential fire, explosion or flood, and distribution panels and area control panels are set flush with the wall in strategic locations. Recessed ceiling lights and trim wall brackets, flush



and surface mounted exit lights are available as well as the wire-caged ceiling fixtures pictured. The system's noncorroding nickel-cadmium battery needs water once a year and is said to have a 25-year life. Operating completely independently of the building's power source, the lights go on the instant that fire or water damage part or all of the structure's regular circuits. Standard's built-in systems, complete with cabinets, controls, battery, and fixtures, start at \$1,282 for the minimum 10 amp. up to \$4,369 for the 45 amp. plus installation.

Manufacturer: The Standard Electric Time Co., Springfield 2, Mass.

SLIPFIT THRESHOLD adjusts to different floor levels

Two interlocking extrusions of structural aluminum comprise National Guard's adjustable threshold. Made for door openings between floor levels of different heights, the threshold telescopes to accommodate offsets from 1/4" to 1". No grout or curb is needed; weatherstripping locks into the

* continued on p. 180



FOLDOORS at First Presbyterian Church, Grand Haven, Mich.



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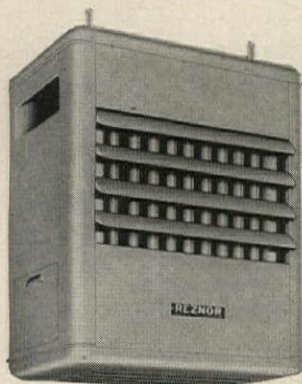
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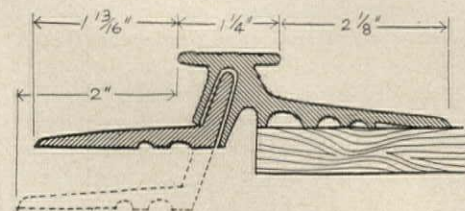
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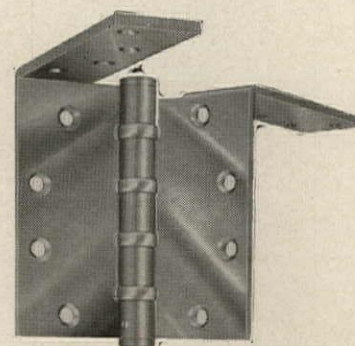
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GAS UNIT **HEATERS**

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double lip. The threshold can be used with inswinging or outswinging doors. It is furnished predrilled and cut to length. Minimum height is $\frac{7}{8}$ " from highest floor level and the over-all width is $5\frac{1}{4}$ " to $5\frac{1}{2}$ ". High polish, mill finish or anodized surface treatment can be specified. Cost is about \$2.65 a lin. ft.

Manufacturer: National Guard Products, Inc., 540 Jackson Ave., Memphis, Tenn.



FLANGED HINGE takes brunt of heavy door load

Instead of throwing all the heft of a door closer or high wind on a few little screws, the winged *Anchor Hinge* absorbs the extra load. Adaptable for all wood or metal exterior doors $1\frac{3}{4}$ " to $2\frac{1}{4}$ " thick, the $5" \times 4\frac{1}{2}"$ wrought steel hinge has reinforcing angles that extend out from both the jamb and door leaf to compensate for unbalanced heavy loads. Another model, with flange plate for the jamb only, can be used on a door that is already mortised on top for a concealed closer. Both are made in right-hand and left-hand models. One *Anchor Hinge* plus two matching mortise butts make up a door package and retail at \$62.

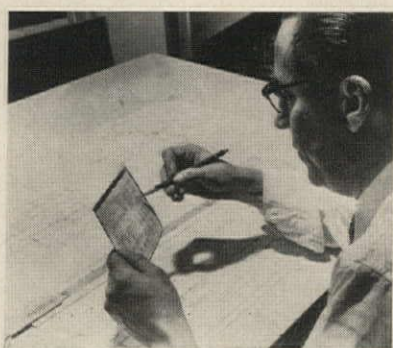
Manufacturer: McKinney Mfg. Co., 1715 Liverpool St., Pittsburgh, Pa.

PHOTOGRAPHIC PRINTS come up clearer than originals

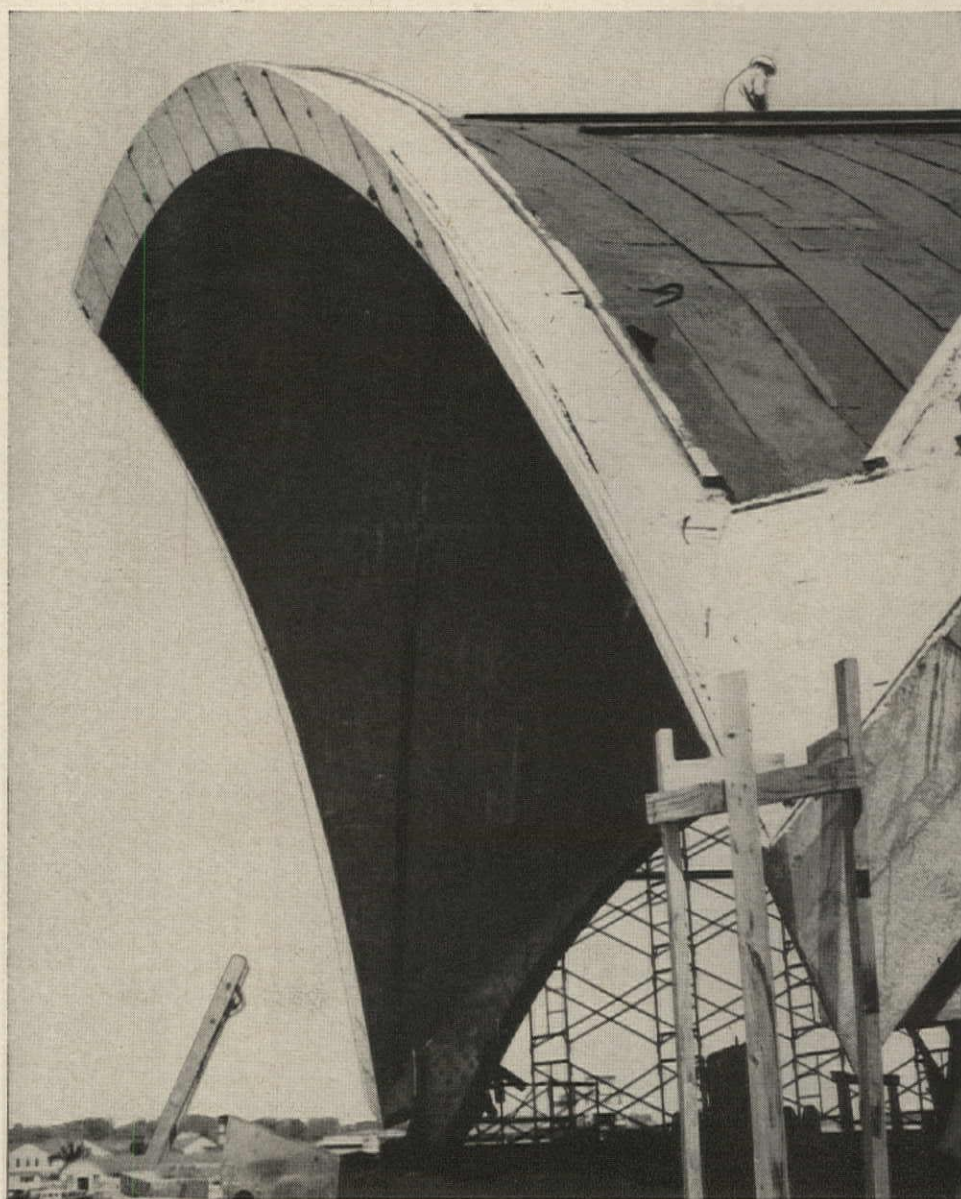
Valuable and cumbersome working drawings can be reduced to convenient legible file negatives $4 \times 5\frac{1}{2}"$ in the Micro-Master reproduction service. Every piece of equipment involved in the process—from the 105 mm camera, projector and chemical developing tank down to the negative envelope—is specifically designed to handle precise copying and printing of large and intricate line drawings. The results border on unbelievable. Faded pencil lines come up crisp as ink. Smudges, erasures and unwanted data can be blocked out so that the $4" \times 5\frac{1}{2}"$ negative prints of



large drawings are easily legible. Precise, undistorted "second originals" can be made up to 3' x 4'-6" on a variety of translucent or opaque papers, cloths and plastic. Except for extremely complex drawings, the contacts or the negatives themselves can be used for reference. K and E has set up *Micro Master* facilities



in 40 major cities. Communications between different branches of a design firm or among architect, engineer and client can be handled as easily as posting a letter. For convenient handling in the field, exact half or quarter size prints can be made for job supervisors. Negatives are treated to last 100 years in archive storage and take up a fraction of the cabinet space consumed by originals. In quantity reproduction, costs run about the same as for ordinary blueprinting. *Co-Processors: Micro-Master, Inc., Kansas City, Mo. and Keuffel & Esser, Jersey City, N. J.*



2,000 tons of concrete toe-dance on 12 points

This billowing roof on St. Louis' Lambert Field air terminal is in fact four million pounds of four-inch poured concrete, sheathed by 100,000 square feet of copper! Two-by-four furring strips curving in two directions presented a real fastening problem. Naturally, the contractor turned to RAMSET and completed the job quickly and easily.

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RAMSET is the modern method for all modern construction—versatile, flexible, economical and fast. When you specify RAMSET you please contractors, builders and owners alike. New catalog gives complete details. Write for your copy today.



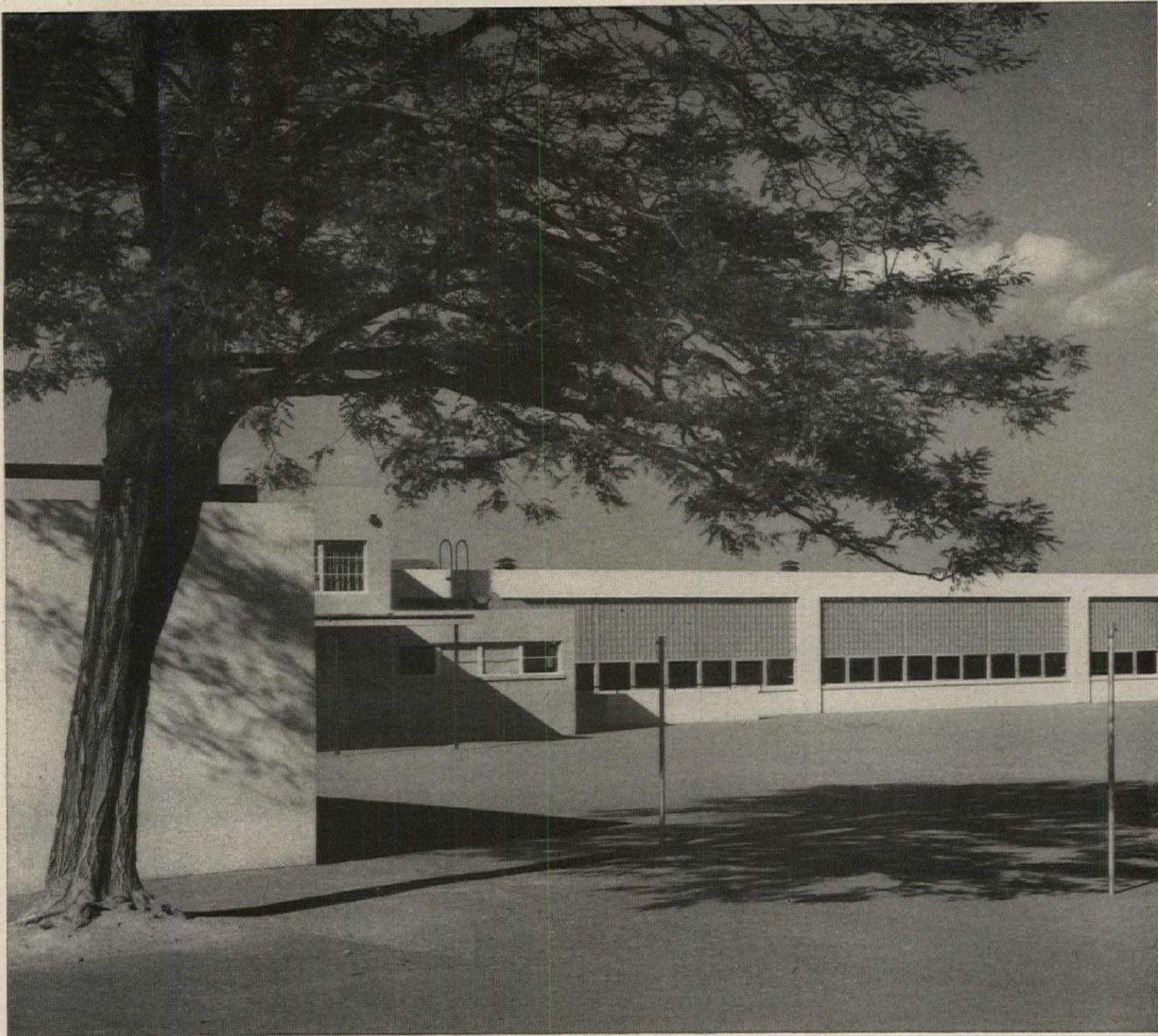
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CLEVELAND 11, OHIO

Low school construction costs demonstrate **Three
of fir plywood**



Re-usable fir plywood concrete forms helped set a new standard in low school construction cost for Washington State on 46,891 sq. ft. Lowell Elementary School, Tacoma, Washington.

key advantages concrete forms

1. time and labor savings

The design adaptability, time and labor savings afforded by fir plywood forms helped set a Washington State record for low construction costs on this Tacoma school. Allowing half area* for the lower floor, school officials give \$9.91 per square foot as the complete construction cost, including taxes and fees. Architect Irvin E. Muri credits fir plywood forms with playing an important role in helping hold costs to this low figure — some 20 per cent below the state average.

2. smooth, fin-free concrete

Plywood-formed surfaces, both inside and out, were merely sack-rubbed and then painted — a major factor in the low cost. Fir plywood also was used for ceiling slabs, retaining walls.

3. economy through re-use

Up to 6 re-uses of plywood forms were reported by contractor. In addition, many panels were later re-used on other jobs. The contractor reports the plywood forms helped speed work and cut costs all along the line.

**Allowing full area for the complete per square foot construction cost comes to \$7.85.*



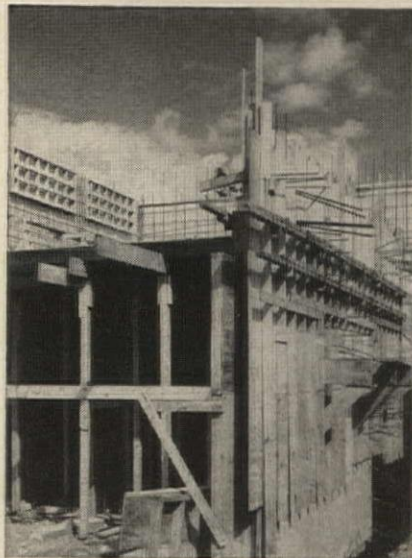
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Construction view shows wall and floor slab forms in place. Panels were used six times on job, many also re-used by contractor on subsequent jobs.



Stripping ceiling forms. Exposed concrete surfaces, both inside and out formed against 5/8" fir plywood, were painted direct after minimum of rubbing, eliminating plastering.

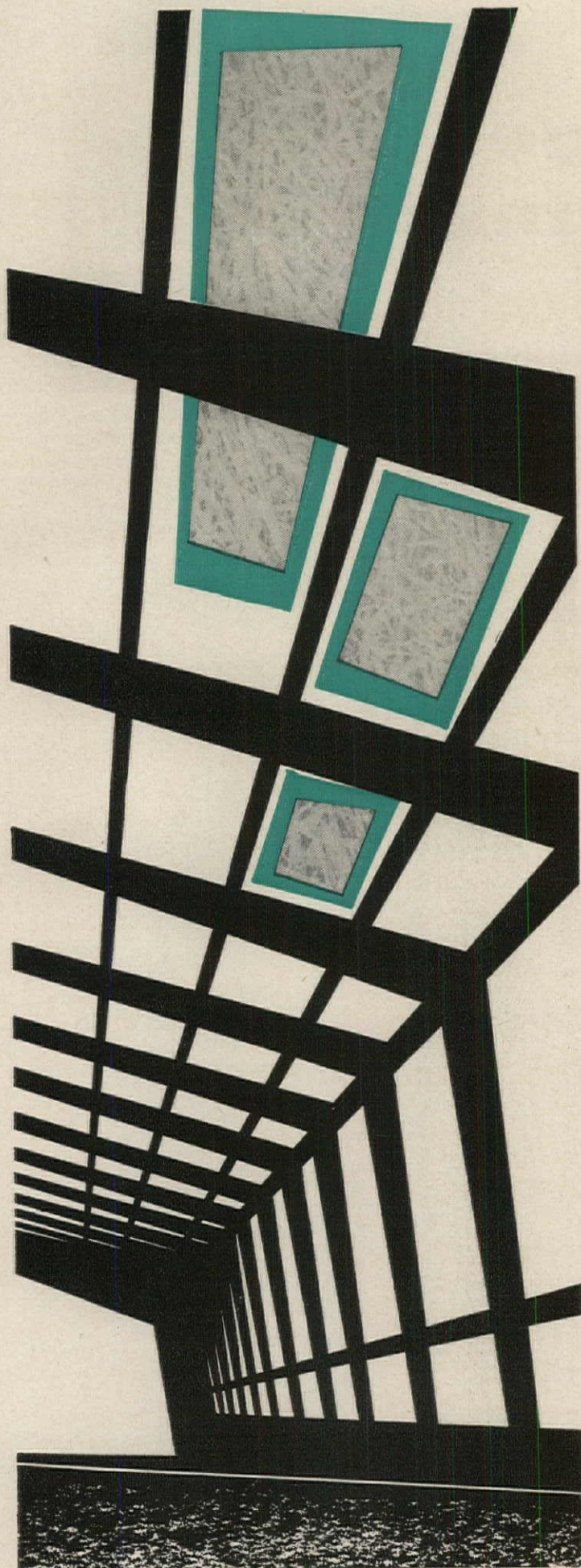
**INTERIOR
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LOWELL ELEMENTARY SCHOOL
LOCATION: Tacoma, Washington
ARCHITECTS: Lance, Muri & McGuire, Tacoma
CONTRACTORS: Bonnell Construction Co., Tacoma



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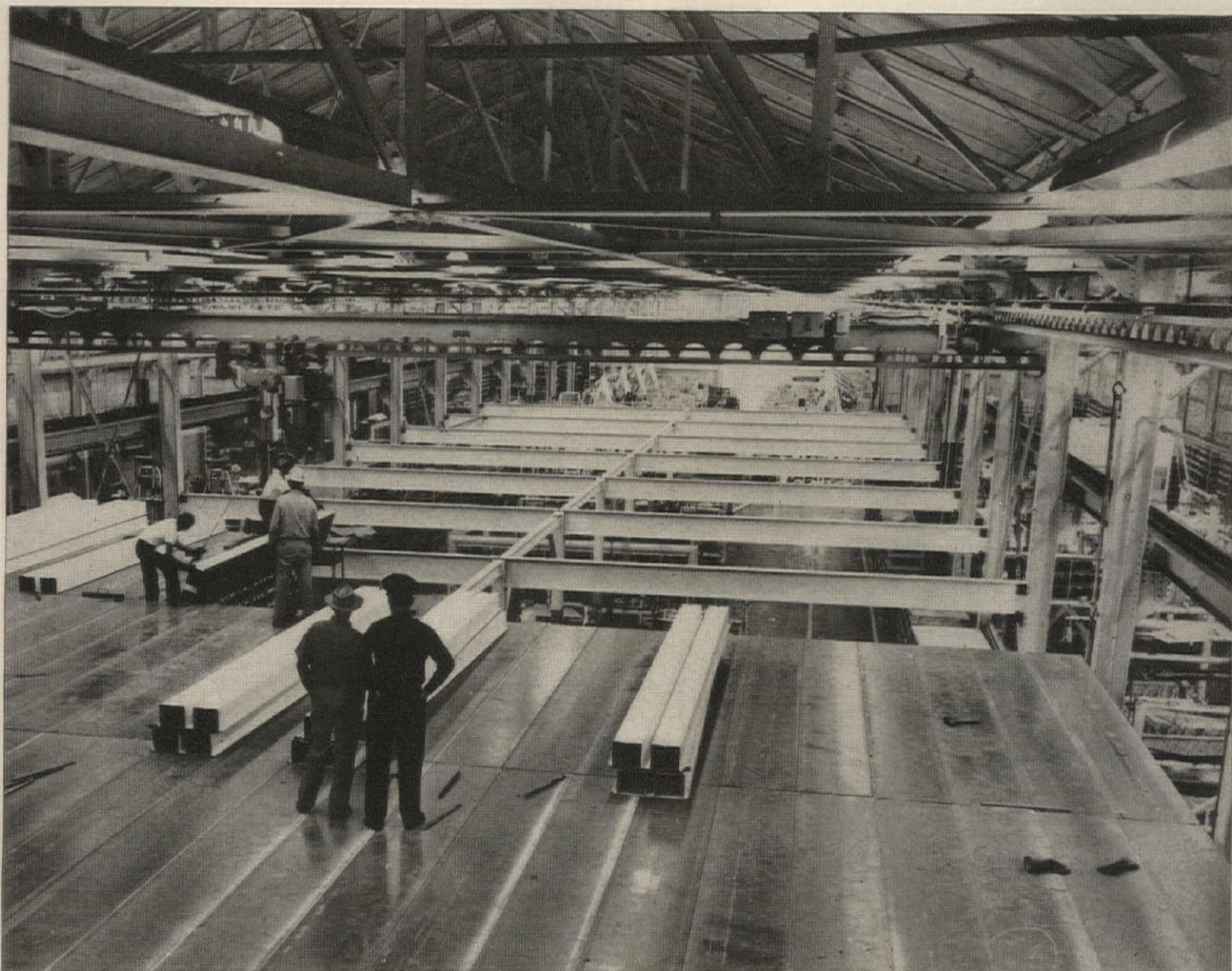
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Fenestra Industrial Mezzanine under construction at Douglas Aircraft Co., Torrance, California.
 Architect: Van Dyke & Barnes, Los Angeles. Contractor: W. R. Steyer Co., Los Angeles.

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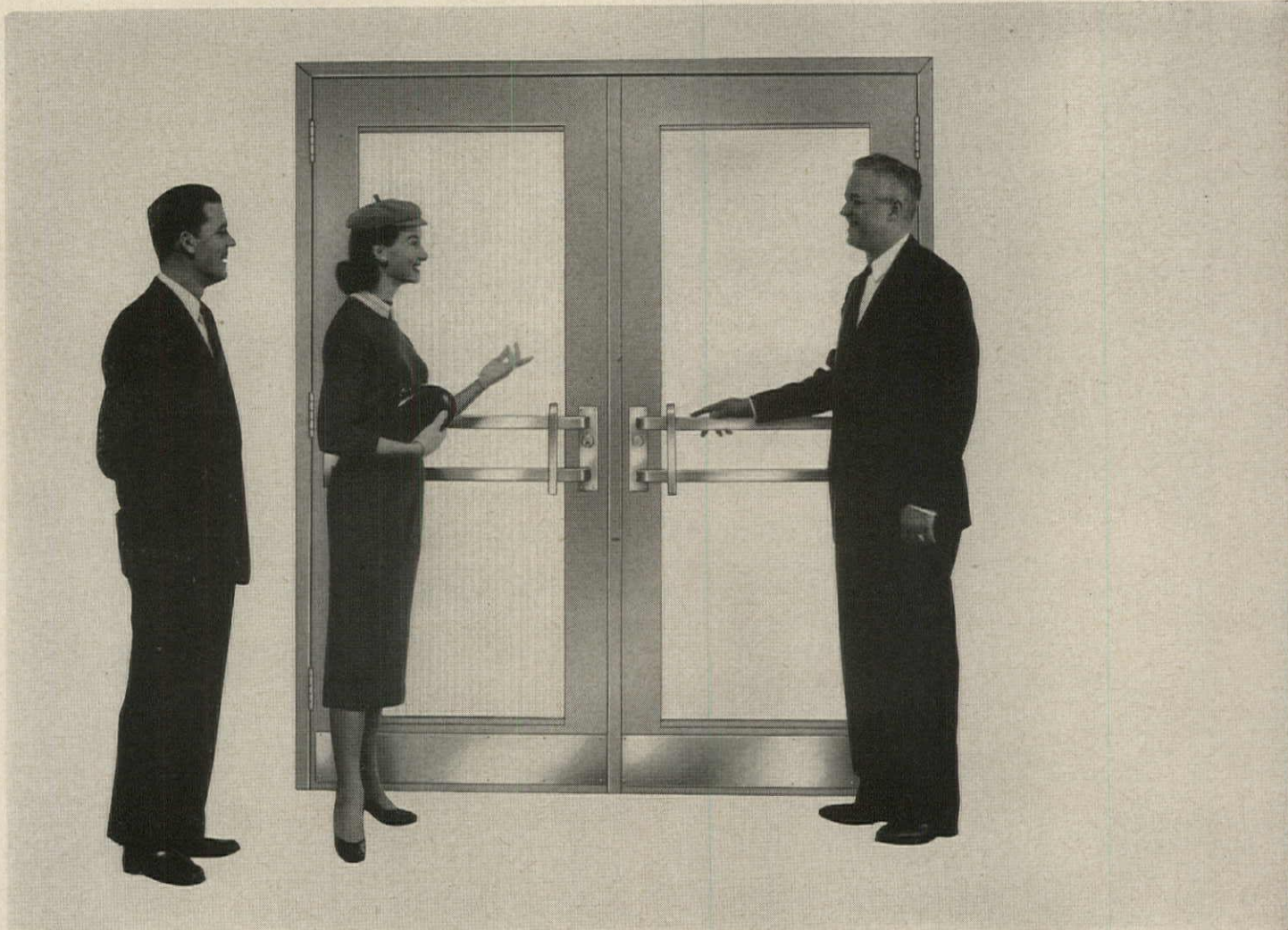
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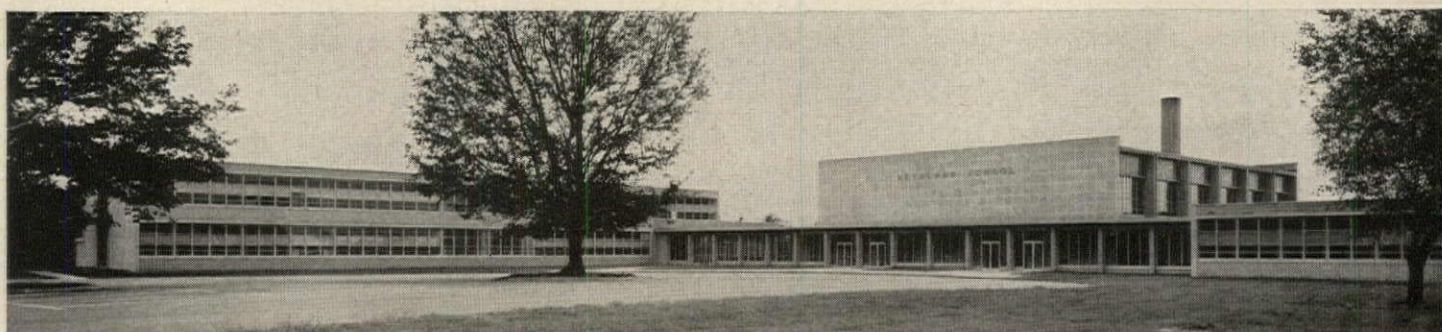
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Look like costly custom-made doors, don't they? They're not. They're stock doors by Fenestra®—with an installed cost about \$100 less per opening than you'd expect to pay!

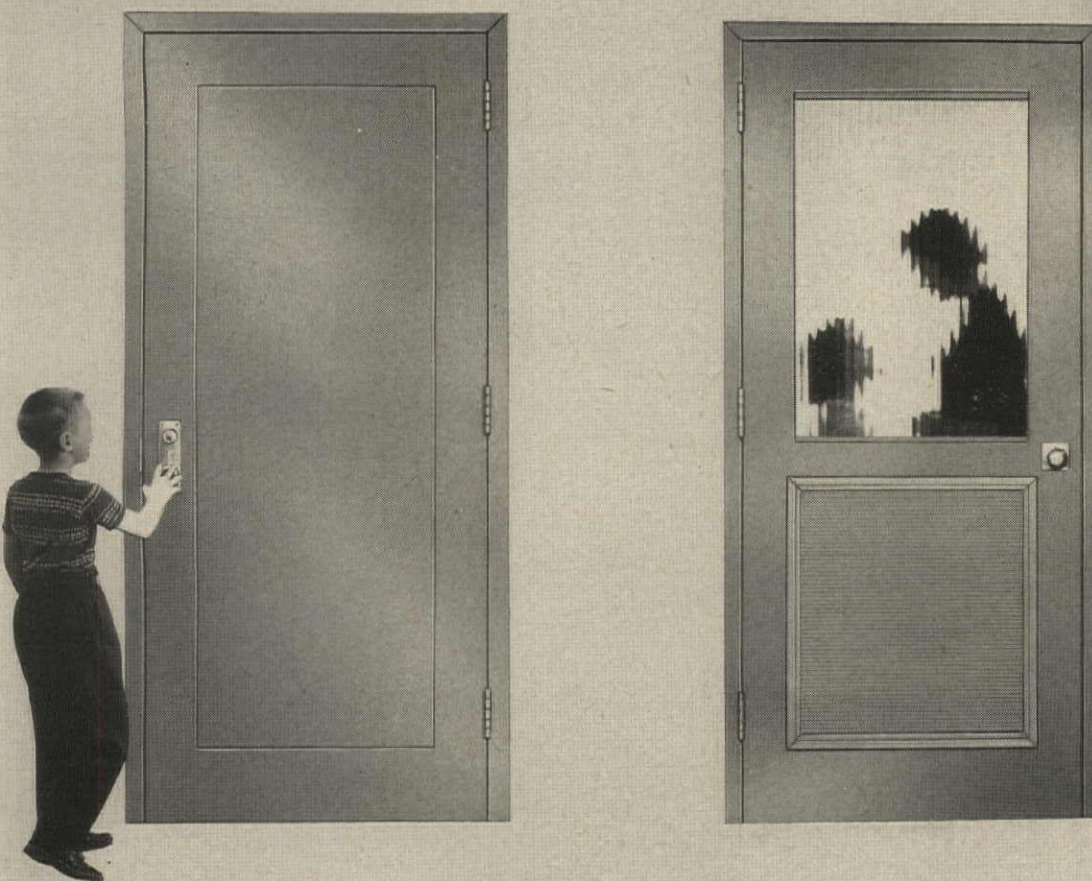
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REIDLAND SCHOOL, Paducah (Reidland), Ky., cost less to build because 134 Fenestra 1 $\frac{3}{4}$ " Hollow Metal Flush Doors were used. *Architect:* G. Tandy & Lee Potter Smith, Paducah, Ky. *Contractor:* Erhart-Knopf Construction Co., Inc., Louisville, Ky.

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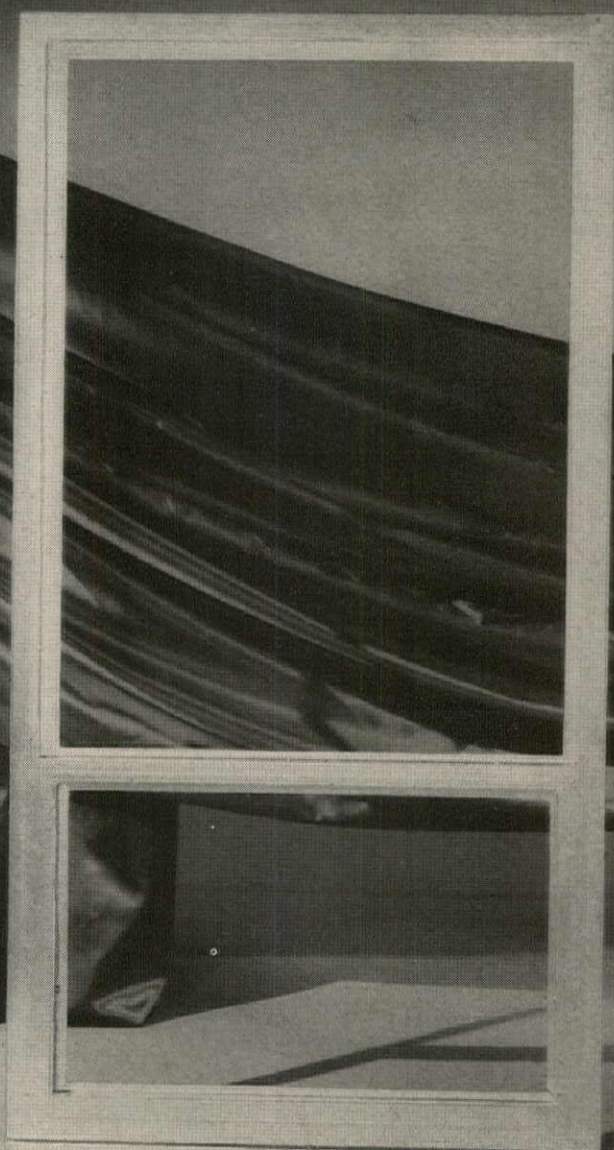
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Standard 20% salt spray tests indicate that this new treatment increases the resistance of the zinc to the start of white corrosion by 3 to 12 times. It

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The FENLITE Process requires precision electronic control of every step in the process. *The windows must be completely submerged in one dip in each bath!* Fenestra's specially designed "million-dollar" plant—the only one of its kind in America—has been adapted to produce this exclusive new finish.

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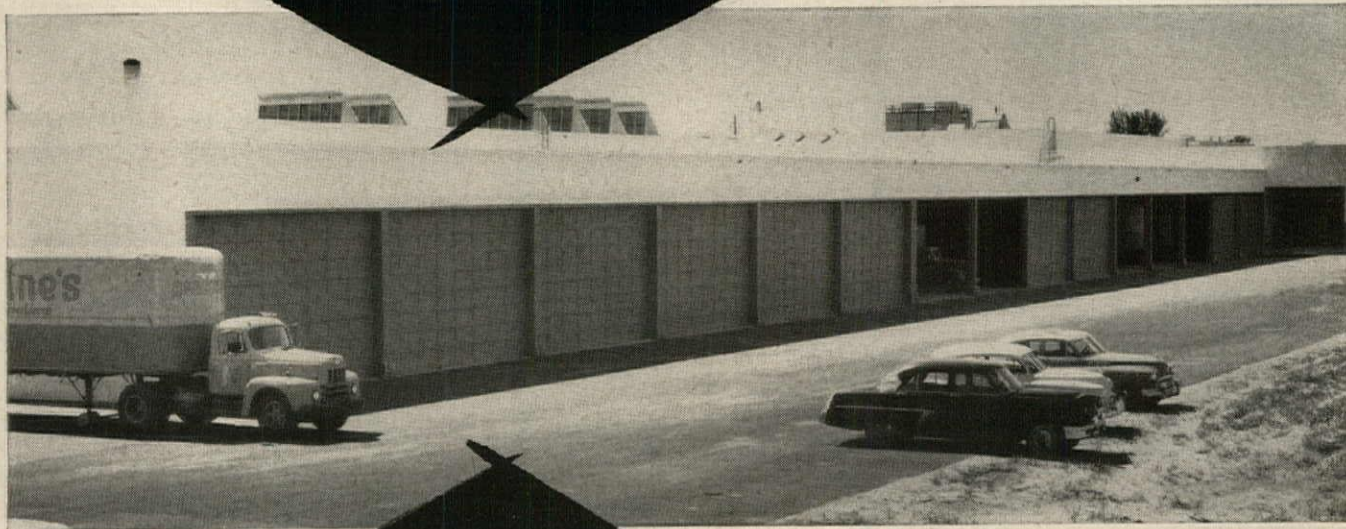
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Here's a "wall" that rolls up electrically for big-truck access to a fully sheltered loading platform . . . closes tight—electrically—in seconds.

It's a popular, efficiency-boosting design for buildings with heavy traffic. A design that calls for the rugged construction, smooth performance and appealing lines of Ro-Way overhead type doors.

Ro-way commercial doors are built to last with seasoned lumber and Masonite® Dorlux® panels. Mortise and tenon joints both glued and steel doweled for extra strength. Seal-A-Matic hinges, Taper-Tite track and ball bearing rollers to assure smooth, trouble-free operation and snug fit. Big, properly tensioned Power-Metered springs for easy action. Electric operators for fast, efficient service. Heavy gauge hardware both Parkerized and painted to prevent rust and the corrosion of salt air and industrial fumes.

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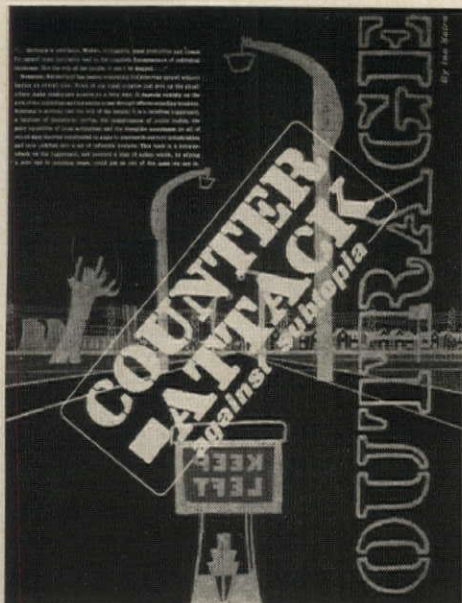
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... landscape ... schools ... costs ... teahouses



COUNTER-ATTACK. By Ian Nairn. A reprint of the special December issue of *The Architectural Review*. Published by the Architectural Press, 9-13 Queen Anne's Gate, London, S.W. 1, England. 436 pp. 12" x 10". Illus. About \$1.75

Always formidable when their national interest is threatened, the English are deadly indomitable when their backs, at the same time, are against the wall. The enemy in this case is an insistent dragon named Subtopia* whose menacing behavior was fully described in Ian Nairn's first non-fictional fable, *Outrage*.

The hero of the contest is the slumbering British public. This volume seeks to rouse him into action, into counterattacking Subtopia with his traditionally effective weapons of intelligence, conservatism and love of ordered beauty. Nairn also gives our real-life hero new ammunition, suggesting that he organize his campaign along the following lines:

► Categorize the landscape—do you want the area in question to look like the metropolis? the town? the suburb? the country? or the wilderness? "The major crime of subtopia," Nairn maintains, "is that it blurs the distinction between places."

► Clean it up. That is, remove all the messy, distractive elements, so many of which are unnecessary verticals (like the nonsensical, upright sign proclaiming itself to be Ministry of Transport Standard N. 39201). "Recreate as far as possible a horizontal world with verticals in their proper place as man's way of expressing things that are worth saying."

* "Subtopia," an invention of *The Architectural Review*, is now an accepted word in British usage, connoting the uglier aspects of suburban sprawl.

► Pull it together. Don't waste any of England's precious land.

► Camouflage what remains and is ugly. Nairn claims that the Swiss (Europeans, but small Europeans) carry out this last order supremely well.

The collection of advice, abundantly illustrated, is a brilliant handbook for an imminent warrior—whether he be British or American.

THE CORE OF THE CITY: A Pilot Study of Changing Land Uses in Central Business Districts. By John Rannells. Published by the Columbia University Press, 2960 Broadway, New York 27, N.Y. 238 pp. 6" x 9". \$5.50

For those who fix cities, particularly those who must tamper with the physical, mechanical interiors, John Rannell's book will be most valuable. Less professional readers, however, may be put off by the book's technical jargon and unhuman attitude.

We can continue to hope that one day a writer will come along who can succeed in introducing the layman to a broader knowledge of all that goes on inside the humming façades of US cities.

JAPANESE TEMPLES & TEAHOUSES. By Werner Blaser. Published by Dodge Books, 119 West 40th St., New York 18, N.Y. 156 pp. Illus. 12½" x 9½". \$12.75

A pictorial delight to the casual reader, this book may prove somewhat disturbing to those who work their way through the text. The author's point is that a crime is committed in adapting Japanese designs to the purposes of modern, Western architecture. We are leaving behind the best part of the pattern, its spiritual validity.

MODERN ARCHITECTURE IN BRAZIL. By Henrique E. Mindlin, introduction by Prof. S. Giedion. Published by Reinhold Publishing Corp., 430 Park Ave., New York, N.Y. 256 pp. 8½" x 12". Illus. \$12.50

For quite long enough North Americans with a casual interest in the architecture of our hemisphere have written off Brazil as "the place where Niemeyer works"—in somewhat the manner of the *Charley's Aunt* sophomore who knew so much about "Brazil: where the nuts come from."

It is time now to take a fuller look at the amazing developments in Brazilian architecture which have occurred during the past two decades. Henrique Mindlin's book gives us a great opportunity to make such an examination, being the most complete pictorial review of the important work in Brazil since Philip Goodwin's and Kidder Smith's superb volume, *Brazil Builds*.

continued on p. 192

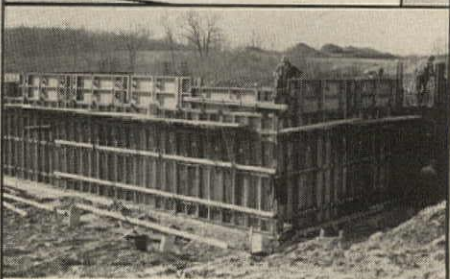
Case History #139
Ridgewood, New Jersey, Contractor Reports:

"CONCRETE FORM ERECTION COSTS CUT 47% WITH ROCFORM SYSTEMS"

on the erection of 'Nike Sites' for the United States Government under the direction of the Corps of Engineers, U. S. Army.

We were able to reduce our erection costs by 47% less than they formerly were when we used a less advanced forming method that employed snaptys, 4' x 8' panels, and 2 x 4, 2 x 6 walers, strongbacks, etc. In addition to these savings, Rocform Systems eliminate 90% of standard bracing, strongbacking and all tie rod and hardware expense. These savings aid us materially in obtaining new construction jobs.

Yours very truly,
Peter J. Soldano
CRETE CONCRETE CORPORATION



Exterior view of Rocform systems as used in the construction of "Nike Sites" at Springvalley, New York. Note total absence of bracing timbers, strongbacking and wood walers.

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- All metal walers
- All hardware is guaranteed and replaced without charge when necessary
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SCHOOL PLANNING AND BUILDING HANDBOOK. By N. L. Engelhardt, N. L. Engelhardt Jr., and Stanton Leggett. Published by Dodge Books, 119 W. 40th St., New York 18, N.Y. 626 pp. 6" x 9". Illus. \$12.75

FROM SCHOOL PROGRAM TO SCHOOL PLANT. By John H. Herrick, Ralph D. McLeary, Wilfred F. Clapp, and Walter F. Bogner. Published by Henry Holt and Co., 383 Madison Ave., New York, N.Y. 482 pp. 6" x 9". \$6

Two books on school planning in any one season make an unusual event; when

the books are both as good as these, it is a clear indication that we are on our way to a happier day for US school construction. If the many authors of these two studies succeed in their united purpose, our schools will be better planned, better built and better looking than we could dare hope.

Both works take the idea of a new school from the "community survey" stage up to the September moment when the doors of the new building are opened. Both manage the schedule with thoroughness and with

respect for all the problems encountered.

Major advantages of the Engelhardt-Engelhardt-Leggett book are that it is better illustrated, more specific in its descriptions and more successful in its chronological presentation. But a deeper, more thoughtful analysis of the important group relationships involved in building a community school may be found in the Herrick-McLeary-Clapp-Bogner volume.

LOCATION AND SPACE-ECONOMY. By Walter Isard. Co-published by the Technology Press of Massachusetts Institute of Technology and John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N.Y. 350 pp. 6" x 9". \$8.75

An impressive attempt to figure out economically and mathematically where one's building should be located. Though more difficult than celestial navigation, the book rewards readers with a lucid, cant-free text.

BUILDING COST MANUAL. Prepared under the direction of The Joint Committee on Building Costs of the Chicago Chapter of the American Institute of Architects and the Appraisers Division of The Chicago Real Estate Board. Published by John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N.Y. 367 pp. Illus. 9" x 11". \$15

The manual deals with construction costs of 150 different, representative building types. It includes introductory material on factors affecting building costs, estimating building costs, depreciation and regional variations in building costs.

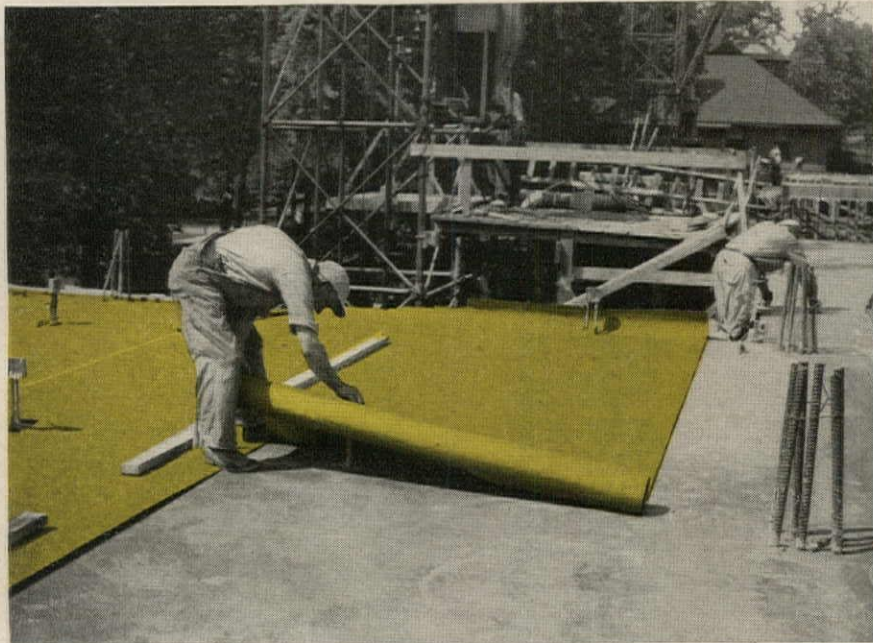
FORM IN CIVILIZATION: Collected Papers on Art and Labour. By W. R. Lethaby. Published by the Oxford University Press, 114 Fifth Ave., New York 11, N.Y. Foreword by Lewis Mumford. 196 pp. 5 1/2" x 7". \$2.75

Whatever force brought about the reprinting of W. R. Lethaby's papers at this time, Lewis Mumford or the Oxford people, the idea was excellent. For Lethaby, a leader of the Arts and Crafts movement in England during the first part of this century, was a courageous spokesman for a good-looking, uncluttered world. He was particularly responsible for extending the movement's doctrines beyond mere "pious medievalism and blind mechanophobia."

And for those who have always associated the term "Arts and Crafts" with fussy rusticism, the new edition should be an embarrassing revelation: they've been misusing or mishearing an important, modern concept. Listen to Lethaby on town planning (Railroad Dept.):

"A more difficult matter to deal with, as being neither public nor private, and as being of the utmost importance to the town while not of it, is the local railway system. The municipalities will have at some time to reconsider their rights against the great external exploiting corporations, and require that some proprieties are observed in the stations, approach-

continued on p. 194



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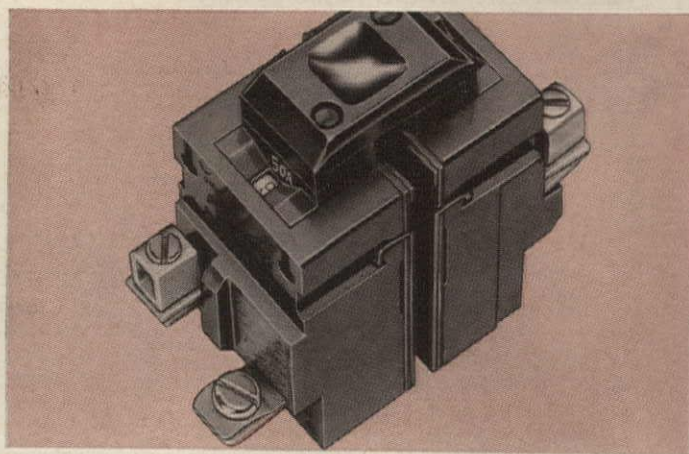
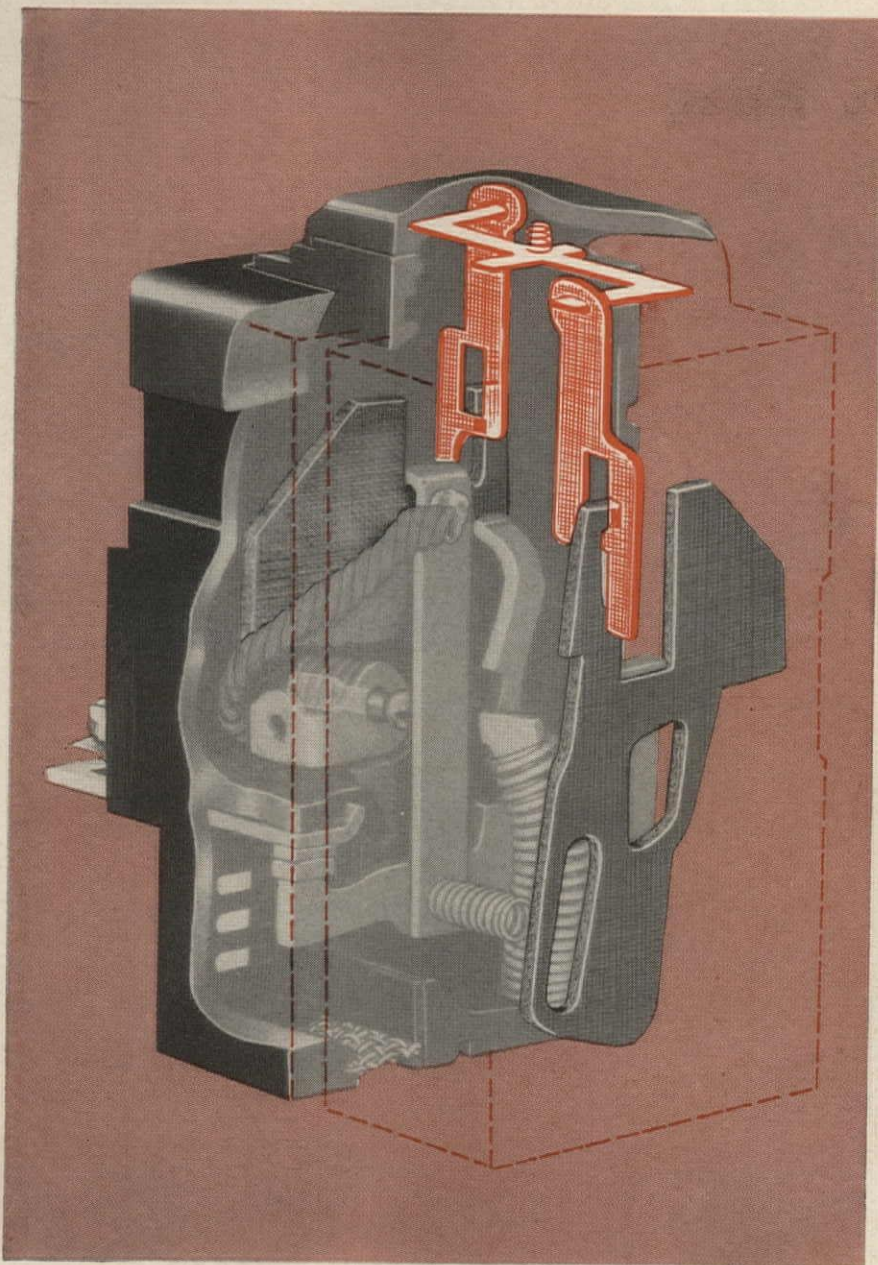
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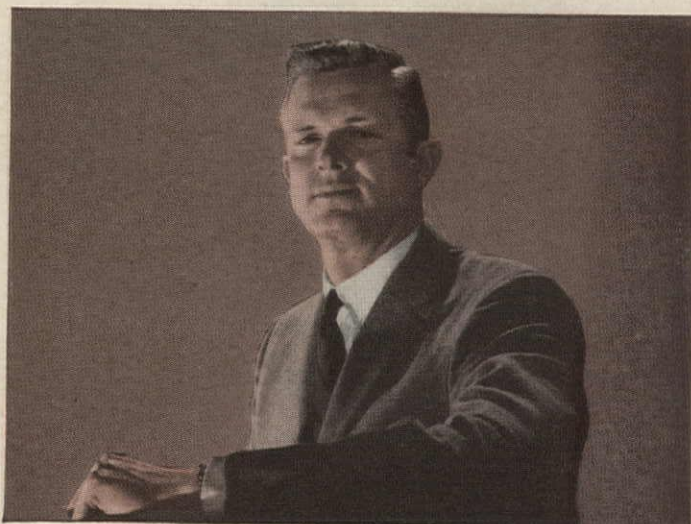
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es and bridges. The stations especially have been allowed to run down by degrees to a level which is intolerable, and most of them seem to be looked on as mere hoardings for advertisements. We must first of all try to see them as they are, and not go on supposing that stations are 'like that.' This is no question of taste: it is a tremendous matter of national efficiency and discipline. The riot of advertising along the approaches to our towns will have to be controlled into some order, and the citizen must to some extent be protected.

Violent advertisement is a form of assault which seeks to gain attention by slapping you in the face."

BOOKS RECEIVED

TIDEWATER MARYLAND ARCHITECTURE & GARDENS. By Henry Chandlee Forman. Published by the Architecture Book Publishing Co., 883 First Ave., N.Y. 22, N.Y. 208 pp. Illus. 8" x 10". \$10

A GUIDE TO EARLY AMERICAN HOMES—SOUTH. By Dorothy and Richard Pratt. Published by McGraw Hill Book Co., Inc., 330 W. 42nd St., New York 36, N.Y. 227 pp. 6¾" x 10". Illus. \$6.95

SOUTHERN INTERIORS OF CHARLESTON, S.C. By Samuel and Narcissa Chamberlain. Published by Hastings House, Inc., 41 E. 50th St., New York 22, N.Y. 172 pp. 9½" x 12½". Illus. \$15

COURSE IN BEGINNING WATERCOLOR. By Musacchia, Fluchere & Grainger. Published by Reinhold Publishing Corp., 430 Park Ave., New York 22, N.Y. 75 pp. 8" x 10½". Illus. \$3.50

COURSE IN PENCIL SKETCHING—BUILDINGS & STREETS. By Ernest W. Watson. Published by Reinhold Publishing Corp., 430 Park Ave., New York 22, N.Y. 63 pp. 8" x 10½". Illus. \$2.50

MODERN DANISH FURNITURE. By Esborn Hiort. Published by the Architectural Book Publishing Co., 883 First Ave., N.Y. 22, N.Y. 135 pp. Illus. 8½" x 12". \$8.50

THE MUTUAL MORTGAGE INSURANCE FUND: A Study of the Adequacy of its Reserves and Resources. By Ernest M. Fisher and Chester Rapkin. Published by Columbia University Press, 2960 Broadway, New York 27, N.Y. 162 pp. 6" x 9½". \$4

HOUSING CODE PROVISIONS: A Reference Guide for Citizen Organizations.

ORGANIZATION OF BLOCK GROUPS FOR NEIGHBORHOOD IMPROVEMENT: The Hyde Park-Kenwood Community Conference. Two reports published by ACTION (American Council to Improve Our Neighborhoods), Box 462, Radio City Sta., New York 20, N.Y.

ENGLISH ART 1625-1714. By T. S. R. Boase. Published by the Oxford University Press, 114 Fifth Ave., New York 11, N.Y. 285 pp. Illus. 6" x 10". \$11.50

TECHNICAL PUBLICATIONS

A selection of new handbooks, textbooks, technical reports, brochures and commercial leaflets, noteworthy for their information content or pictorial format or both.

A HISTORY OF TECHNOLOGY, Vol. II: The Mediterranean Civilizations and the Middle Ages. Edited by Charles Singer, E. J. Holmyard, A. R. Hall and Trevor I. Williams. Published by Oxford University Press, 114 Fifth Ave., New York 11, N.Y. 846 pp. 7½" x 10". Illus. \$26.90

The second in Oxford's series of technological histories is as informative and intelligible to the general reader as was the first. The series continues to be an admirable lesson not only in the development of the world's technology but also in how to write about it.

Volume II sheds a great deal of light on what connection existed between classical technology and the technology of the Middle Ages. The searchlight reveals that the connection was slim indeed.

continued on p. 198

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(54-IN. DIAMETER)

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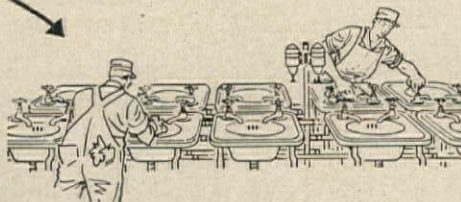
by 25% piping connections

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Since one Bradley replaces 8 to 10 wash basins, and bowl is self-flushing, cleaning and maintenance are simplified.



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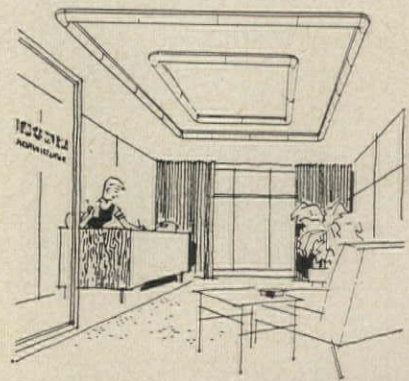
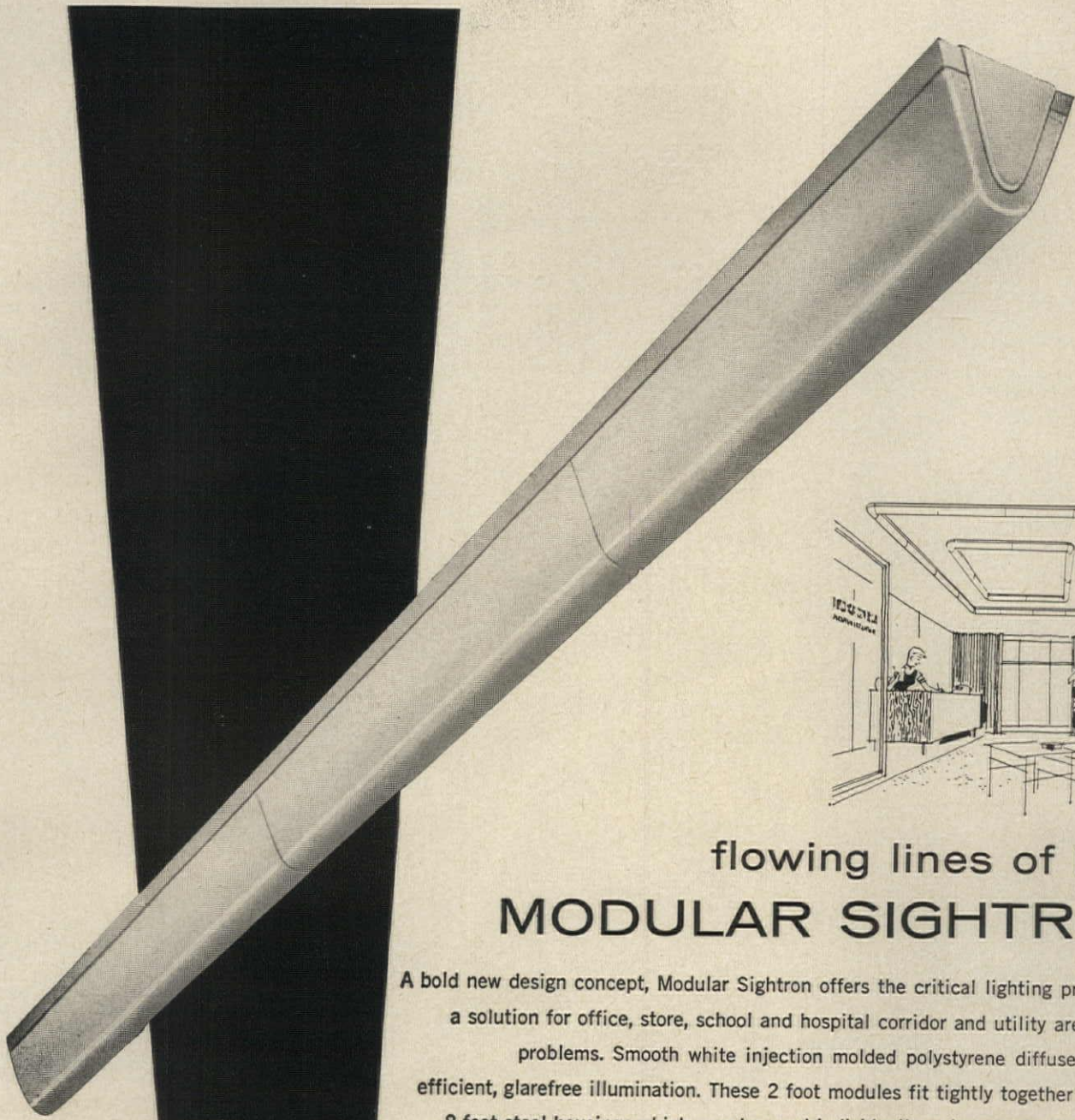
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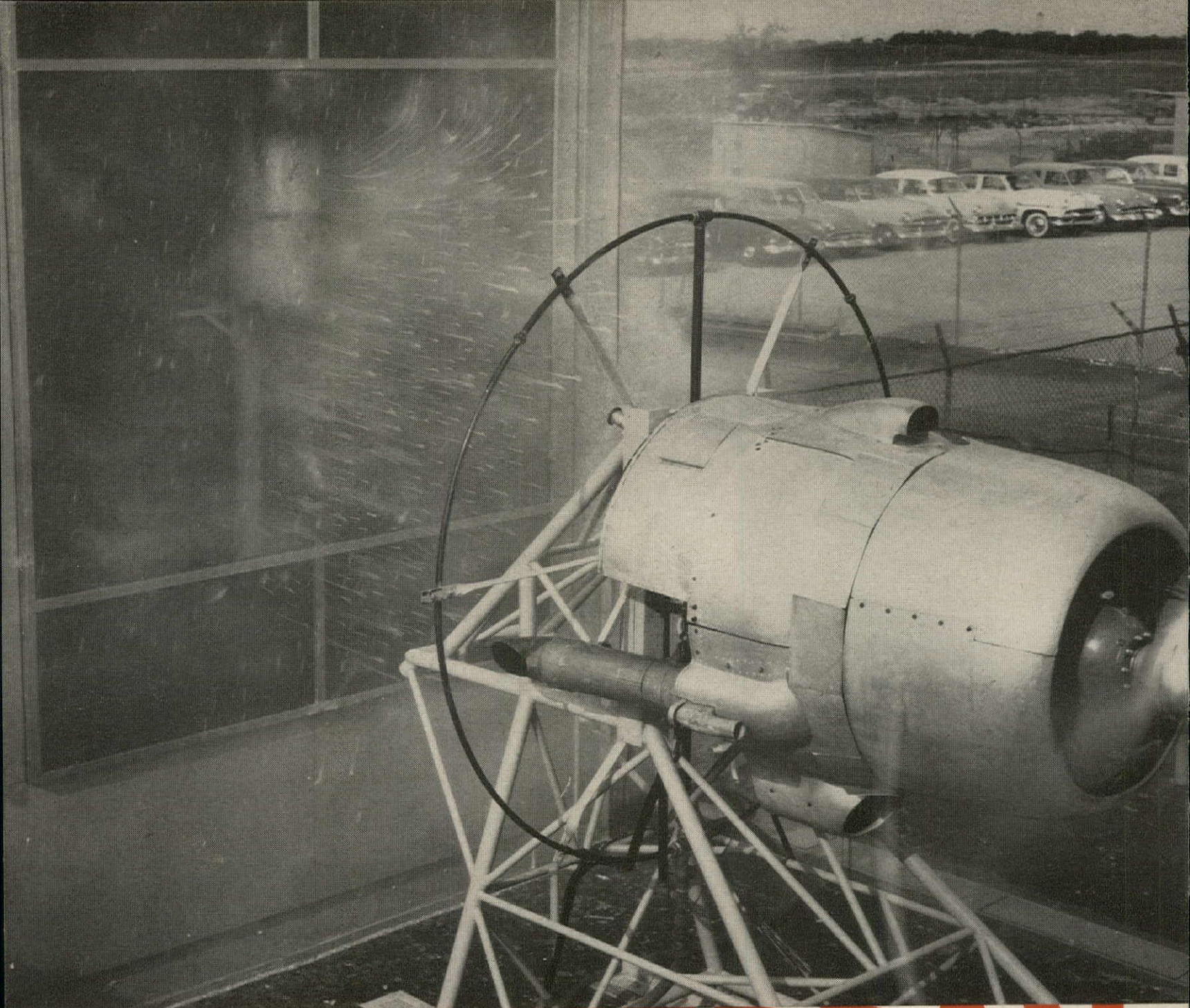
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Only four precast, prestressed concrete beams used in roof of 100' x 130' gymnasium

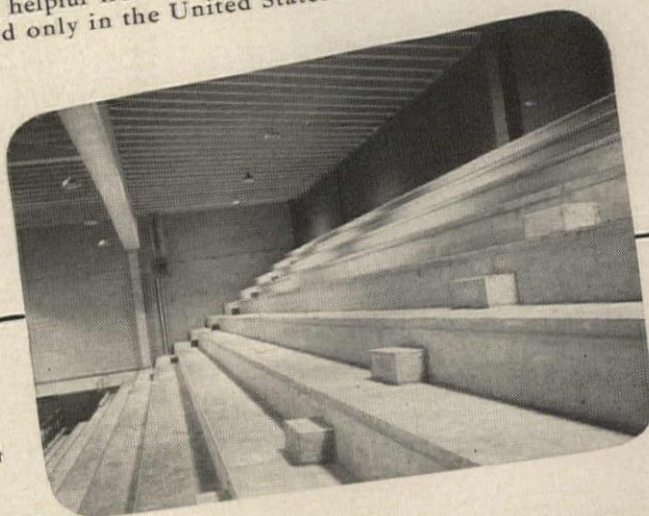
The roof of the Pryor High School gymnasium in Pryor, Okla. is supported by only four 100-ft. precast, prestressed concrete girders. These girders, at 26-ft. centers, carry 2-ft. by 26-ft. precast concrete roof channel slabs. Even the diaphragms are precast concrete.

Prestressed as well as precast concrete units were also used in the gymnasium seating. The L-shaped bleacher seats are precast concrete in 20-ft.-long units and are supported by 35-ft. prestressed concrete beams.

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designed for the same load. Precasting girders and channel slabs saves time and money by reducing forms and using assembly-line methods.

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ADDENDA TO LIFT SLAB ENGINEERING MANUAL. Published by US Lift Slab Corp., 516 Meadows Bldg., Dallas, Tex. 52 pp. Illus.

Loose-leaf inserts for the comprehensive manual on this method of concrete construction, published by its licensor.

GUIDE FOR ULTIMATE STRENGTH DESIGN OF REINFORCED CONCRETE. By Charles S. Whitney and Edward Cohen. Published by American Concrete Institute, P. O. Box 4754, Redford Sta., Detroit 19, Mich. 36 pp. 75¢

Working equations and 15 handy design

charts developed to assist in the simplification and use of ultimate strength design methods in reinforced concrete.

ENGINEERING STRUCTURAL FAILURES. By Rolt Hammond. Published by Philosophical Library, Inc. 224 pp. Illus. \$12

Study and analysis of many types and instances of structural failure, of which the most spectacular have occurred in bridges, but which also have downed large buildings.

WALLS OF STEEL. Published by US Steel Corp., 525 William Penn Pl., Pittsburgh 30, Pa. 46 pp. Illus.

Handsome review of all types of steel-panel curtain-wall construction, with color photographs, diagrams and architectural details of notable commercial and industrial buildings, schools, hotels, hospitals.

FLUORESCENT LUMINAIRES AND TWO NEW DOMELITE SERIES. Published by Gotham Lighting Corp., 37-01 31st St., Long Island City, N.Y. 8 pp. and folder

Well-designed, informative brochures on a new line of modern fluorescent light fixtures and incandescent ceiling lamps.

ELECTRICAL LOAD GROWTH IN BUILDINGS: BRI Technical Reprint No. 11. Published by Building Research Institute, 2101 Constitution Ave., N. W., Washington 25, D.C. 48 pp. \$1

Summary of federal agency and building industry practices, records of load growth, economic analysis and recommendations.

THIS IS GLASS. Published by Corning Glass Works, Corning, N.Y. 64 pp. Illus.

Graphic short history of glass, its methods of manufacture, applications, types and uses, with many good illustrations.

A MODERN GUIDE TO PAINTING SPECIFICATIONS. Published by the Painting & Decorating Contractors of America, 540 N. Michigan Ave., Chicago 11, Ill. 48 pp.

Useful outline and guide to the correct specification of painting and decorating in three quality categories, without proprietary material recommendations, for the use of architects and decorators.

CONTRACTS, SPECIFICATIONS AND ENGINEERING RELATIONS. By Daniel W. Mead, Harold W. Mean and Joseph Akerman. Published by McGraw-Hill Book Co. 427 pp. \$7

Third edition of a well-known guide to the handling of engineering contracts, specifications, worker and client relations, with many actual examples.

THE PLASTIC METHODS OF STRUCTURAL ANALYSIS. By B. G. Neal. Published by John Wiley & Sons Inc. 353 pp. Illus. \$7.50

A textbook and review of new plastic structural analysis methods for mild steel, only recently come into practice (see Technology, p. 156), by a British authority.

ENGINEERING IN HISTORY. By Richard Shelton Kirby, Sidney Withington, Arthur Burr Darling and Frederick Gridley Kilgour. Published by McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 36, N.Y. 530 pp. 6" x 9 1/4". Illus. \$8.50

BUILDING ELEMENTS. Vol. 3. By Richard Llewelyn Davies and D. J. Petty. Published by The Architectural Press, 9-13 Queen Anne's Gate, S.W. 1, London, Eng. 384 pp. 5 3/4" x 9". Illus. About \$5

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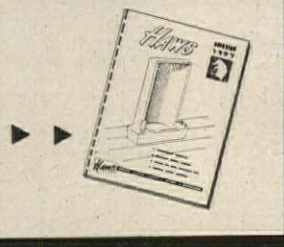


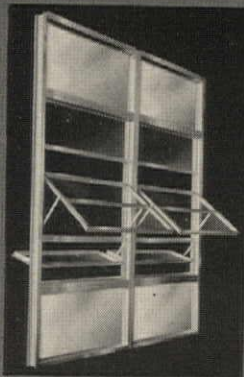
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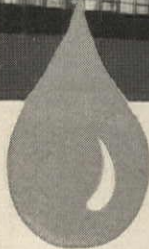
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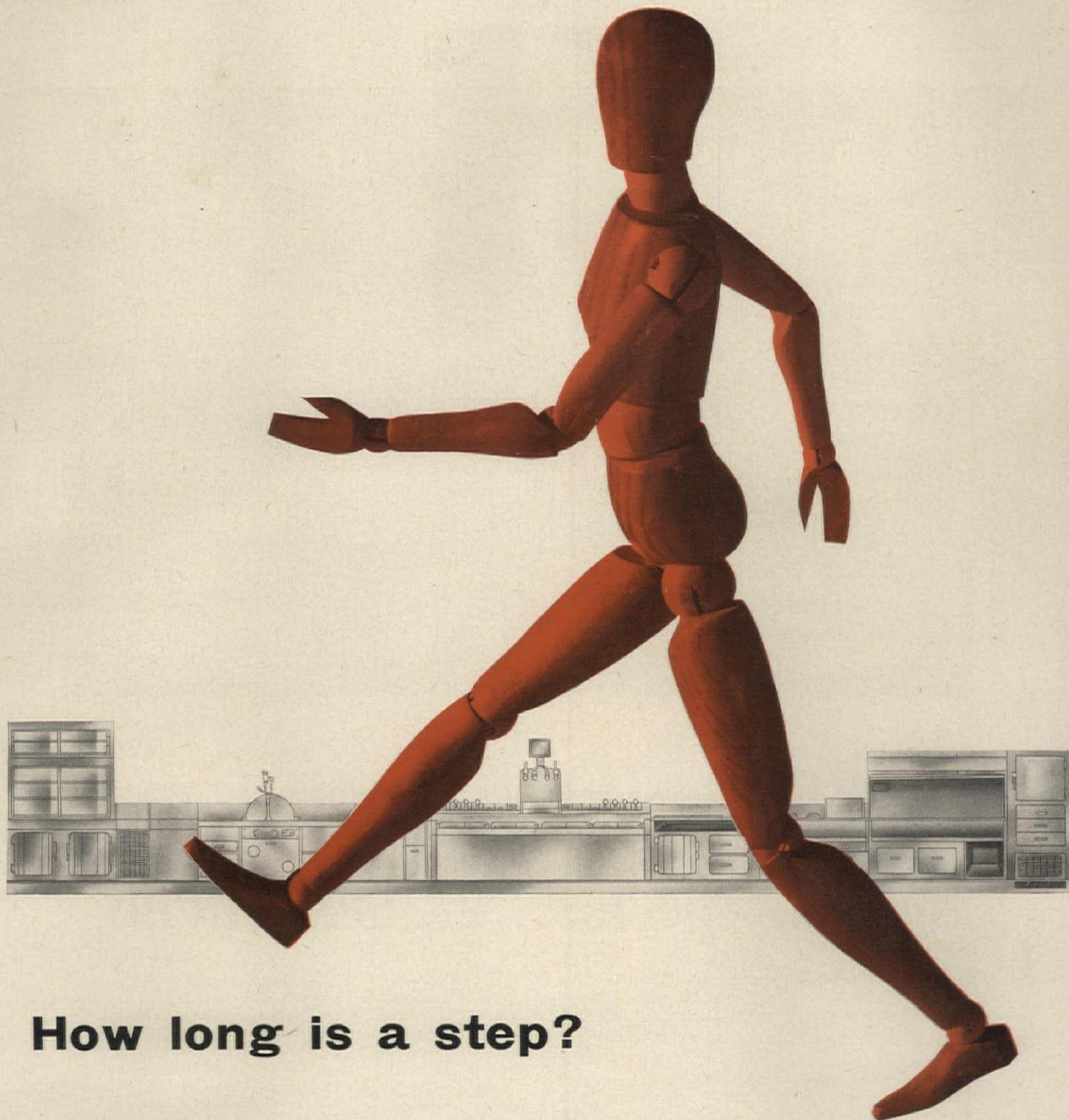
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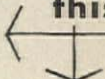
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What other people are saying

Old profession, new purpose

When Leon Chatelain, president of the AIA, was asked to honor the Association's one hundredth anniversary at a Washington's Birthday luncheon in New York, he had this to say about the next century of US architecture:

The architect's task today lies in planning for the human environment of the future. We have learned how to live longer, breed at a faster rate, and consume more goods. Our technology is moving forward with such breath-taking speed that the future has become part of today.

Yet in this Centennial year of our professional society, we can see that we are being slowly strangled by a creeping paralysis of our cities and towns. The population of the US has grown to 170 million. By 1975, we are told, it will reach perhaps 228 million.

Some say that the city centers are dying; that they are little more than decaying, suffocating nerve centers. I believe that no organism can live without its nerve center, and that the preservation and restoration of these nerve centers are of vital concern to all of us.

This applies, on a broad scale, to all our problems of improving our shabby or inadequate community facilities.

In order to establish a procedural basis for preventing this slow death, I suggest that we need large federations of local governments, working together voluntarily on public problems which bridge their boundaries.

Call it, if you will, a new layer of government. This informal federation of local governments is working in a number of areas today. Planning commissions work out agreements for mutually financed public parkland, sewer and water facilities, and recreational centers. This reasoning and working arrangement, I believe, also must apply to urban renewal programs and to the vitally important integration of urban redevelopment with the building of new highways. The two cannot be planned separately.

This is what can be done. And for the moment I am addressing all thinking Americans. If you want to protect the future of your community, you can learn about and even get onto the governmental bodies and boards which are very important—the planning commission, the board of zoning, the housing and redevelopment authority. You can get your civic, service and fraternal clubs interested in your community problem. You can describe the

implications of the problem to your newspapers and enlist their support. You can contact your community leaders in all occupations. For technical and professional help, you can seek the continuing advice of your architects.

Now let me speak for all of the 12,000 members of the American Institute of Architects: we are interested in this problem. We have been trained for it. We want to help.

This is a huge economic problem, yes—but it is more than that. It is a moral, educational, cultural and spiritual problem too. As such, it demands the efforts of your government, your educators, your doctors, your ministers—and, most of all, the ordinary citizen who affects, and is affected by, the environment in which we all must live.

Classical allusion

Moral to a debate on modern architecture by Architect Ralph Walker, senior partner,, Voorhees, Walker, Smith & Smith:

One of the distressing things about the machine age is that we are expected to live in the machine; one of the pleasant memories of the horse and buggy age is that no one ever suggested that we live in the horse.

Glass-house living

The pleasures of living and working in glass buildings were debated at a recent Building Research Institute conference. Harold S. Miner, vice president of the Manufacturers Trust Co., listed the benefits of that company's new bank; Herbert S. Greenwald talked of the problems of operating Mies van der Rohe's apartment building at 860 Lake Shore Dr., Chicago

Miner: I will try to give you a first-hand point of view of what it's like to live and work in a glass bank. Most important of all, it's restful. This may sound odd and may convey a wrong impression about the banking business, which certainly rates high in the production of ulcers, but it is very definitely easier on the nerves. As one member of our staff put it: "It gives you a certain sense of freedom."

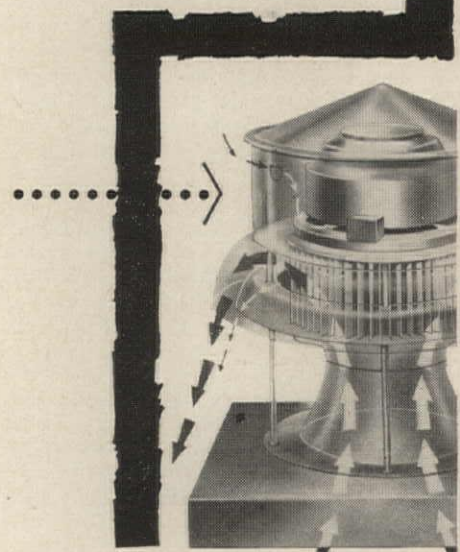
And it also seems to bring the staff itself closer together. Perhaps I could make you understand what I mean by quoting one

continued on p. 204

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of the characters in David Grayson's colloquy on contentment. When asked whether his neighboring farmer was friendly, he replied: "We're good friends in matters of whiffletrees, hog killings and haying, but we have never looked up to the sky together."

One of the most interesting aspects of working in a glass building is the effect it has on personal morale. Anyone in the public eye takes pains to look his best. The personal appearance and dress of every member of our organization have

improved. Hand in hand with this greater pride in appearance goes improvement in morale, a heightened sense of personal well-being, and a resulting improvement in efficiency.

I think the best testimonial I can give you to this business of living and working under glass—and our president agrees most heartily with me in this respect—is that if we had it to do over again we could think of no single major feature of the architecture, of the design, that we would do differently.

Greenwald: I concur in almost everything that has been said about the advantages of glass buildings. However, we apartment-house managers and owners run into some problems with people when we design buildings of glass.

The first thing we have in consumer resistance is fear. People are fearful of falling out of windows. They fear their baby will fall out. They fear the glass will shatter in Chicago's high winds. And some of them have actually the neurotic problem of acrophobia.

The second thing that people worry about is decoration. When you give tenants a wall that's glass, they have to find out how to decorate an apartment house without as much wall space (or at least what they think is wall space).

Another thing they worry about is privacy. They get the feeling, even though they're 30 stories up in the air and facing the lake, that somebody is going to watch them dressing and undressing.

There have been rumors about moisture penetration. My "Punch List" men, finally checking the job, generally refer to that as "inordinate condensation." Well, there's inordinate condensation in many cases, but more likely than not there has also been actual moisture penetration.

In my judgment the glass industry and allied industries face a fantastic challenge. They have enormous profit-making possibilities if only they will start their engineers to work to solve the remaining problems of glass wall construction.

Clients into patrons

Last month the Museum of Modern Art in New York held an exhibit of six new buildings.* The following excerpts are from the exhibit's program, and like the exhibit itself are the work of Arthur Drexler, director of the Museum's Department of Architecture and Design

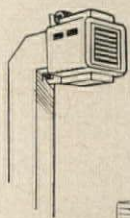
Modern architecture in the US has begun to enjoy a new kind of patronage. Business and government alike are rediscovering the rewards of fine building, and the results can be seen not only in individual works of great beauty but in a generally higher standard of excellence.

Among the major factors which contributed to this development were: the enthusiastic reception given to some of Europe's outstanding architects and teachers, when they converged on this country in the years just before World War II; the related

* US Embassy for New Delhi by Architect Edward D. Stone; US Air Force Academy, Colorado Springs, Col. by Skidmore, Owings & Merrill; office building for Joseph E. Seagram & Sons, New York City, by Mies van der Rohe and Philip Johnson, with Kahn & Jacobs, associated architects; technical center for General Motors, Warren, Mich. by Eero Saarinen & Associates; office building for Chase Manhattan Bank, New York City, by Skidmore, Owings & Merrill; Terminal building for Lambert Field, St. Louis, by Hellmuth, Yamasaki & Leinweber.

continued on p. 206

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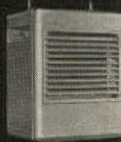
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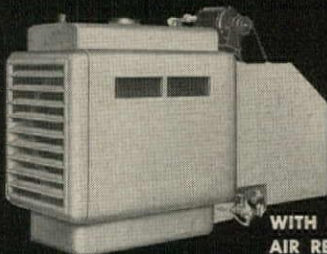
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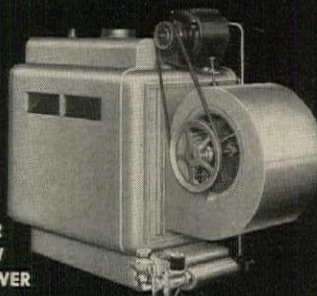
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emergence of a younger generation of architects whose training has been free of eclectic prejudices; and the example of the recent work in America of Ludwig Mies van der Rohe.

But perhaps most important is the continuance of a building boom rivaled in size only by that in Latin America. The sheer quantity of building activity in the US today has given architects a new freedom and has disclosed to their clients unsus-

pected pleasures and possibilities. Indeed, it is a national enthusiasm for the act of building itself that is carrying architecture into livelier realms.

In the past, architectural adventures have been underwritten chiefly by private persons, responsible only to themselves. Important modern buildings have also been executed for universities and other institutions, and from time to time corporations, directed by men of unusual perception,

have commissioned outstanding buildings for business and industry. But today large architectural offices, as well as the rare genius, are receiving the support of cooperative and increasingly perceptive clients.

Government—both state and federal—has begun to discard its timid embarrassment before the heritage of European culture. Emboldened perhaps by its present role in world affairs, the US no longer demands that major government commissions be executed in antique styles. The embassies being built abroad by the State Dept., as part of a program which began in 1946, and the new Academy for the US Air Force, look like what they are: modern American buildings.

The concern with esthetic and social values exhibited by business and government through the buildings of today is not in itself new. It denotes rather a shift in emphasis: clients are becoming patrons.

Planning for industry

Perhaps the architect can't be a regional planner, but he can urge his industrial clients to think big. So suggested E. X. Tuttle, partner of Detroit architects Giffels & Vallet, at the Fourth Annual Architects Conference recently conducted by the University of Kansas

Plants are just not built if success is not anticipated. And successful enterprises usually grow; doubling the initial floor area can be expected. Cost of moving men and materials vertically being as great as it is, most of our plants are, and are rather sure to continue to be, on one level and expansion will be horizontal.

Employee parking requires about the same area as that for manufacturing, as a general rule. Thus, it is obvious that a lively enterprise, having purchased land four times the size needed for its manufacturing operations, could easily, after seven or eight years, have doubled its floor space and used its entire property, leaving no area for softball, landscaping or eating lunches on nice days.

A city faces similar decisions when it acquires land for highways, parks, sewage disposal facilities, water works and parking lots.

I doubt if I would advocate the provision of trout streams on every plant site or replicas of the gardens of Versailles in every community, but I feel safe in saying that any manufacturer or community that fails to provide in its long-range plans a considerable amount of space for grass and trees is very apt to be confronted in a few years with the necessity to purchase some rather high-priced land and perhaps some buildings whose only value will be the space they occupy.

The architect serves his client best who, anticipating change, plans in terms of open space and easily accessible services.

continued on p. 208

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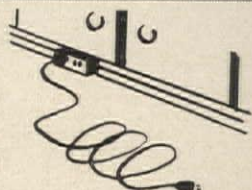
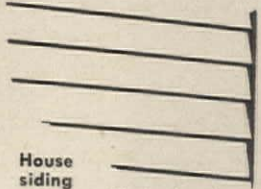
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Housing in Russia

Russian architecture is running a high fever. A temperature reading was recently taken by the US State Dept. publication Soviet Affairs Notes

Soviet publications, particularly those designed for export, often carry illustrations of feverish building activity, vast blocks of workers' apartments, sumptuous sanatoria, and monumental public buildings. The superficial observer might obtain an impression of well-being and abun-

dance, but other more scholarly studies, obscurely tucked away in professional publications, or in back issues of Soviet newspapers, give an opposite impression.

The public architecture of the USSR is characterized by impressive façades done in a highly ornamental nineteenth-century style, which appears to have been favored by Stalin. Colonnades and decorated tile-work abound, and superfluous heroic additions are extended even to the most functional construction. The pyla of the locks of the Volga-Don Canal are surmounted by Greek temples and adorned with statuary

reminiscent of the great arches of ancient Rome. The extreme is perhaps attained by the Khimki boat landing near Moscow—composed of superimposed layers of colonnades surmounted by a Moorish minaret tipped in turn by a needle spire bearing a Red Star. The last motif is very common, and probably derives from the famous "Admiralty Needle" in Leningrad, which dates from the beginning of the nineteenth century.

The style, so reminiscent of Napoleon and Wilhelm II, has been called "imperial" by some students. Recently Party Secretary Khrushchev denounced this extravagance and called for greater simplicity and economy. Speculating on the reasons for such extra expense in an economy-minded country, some have advanced the theory that preference is given to public buildings and installations because they are "collectively" owned and used, and therefore a more fitting subject for extravagance in a socialist society than the private dwellings of the citizens. Probably the desire to impress the people with the permanence of the regime and to give foreigners the illusion of progress and prosperity plays no small role in the policy. Visitors to the USSR and escaped Russians have reported elaborate masquerades perpetrated to deceive visitors into thinking that the average Russian lives very much like a Western European. In the VOKS Bulletin, printed in English, propagandist Zaslavsky writes:

"The first sight that greets the newcomer as he approaches Moscow is its largest and most beautiful building, the Moscow University. Is it not indicative and indeed symbolic that this magnificent palace is used not as a bank or a hotel for millionaires, like America's skyscrapers, but by young students, the children of workers, peasants and intellectuals. Is this not a cue to the whole pattern of life in the socialist state?"

But articles and statistics presented for serious planning purposes quite definitely indicate that the pattern of life in a socialist state hardly parallels the grandly masked corner of the capital.

On the basis of figures on urban living space given in the *Large Soviet Encyclopedia* (1952), and the figure of 80 million urban population given by Malenkov in an August 1953 speech, the average housing space per person in Soviet cities was less than five square meters, or an area about 6' x 9' in size. This is roughly one-quarter of the space available to Western Europeans and Americans. A recent Yugoslav visitor, Milorad Mijovic, was given the figure of 7.2 square meters, but he states that this includes "medieval type dwellings." He was given figures of 4.2 square meters for Tashkent (which would reflect the lower standards of the Russian colonies in Central Asia) and 5.7 for Kiev. This is less living space than is allotted US federal prisoners.

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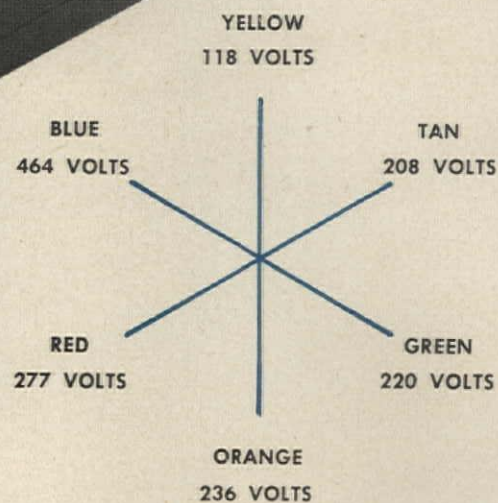
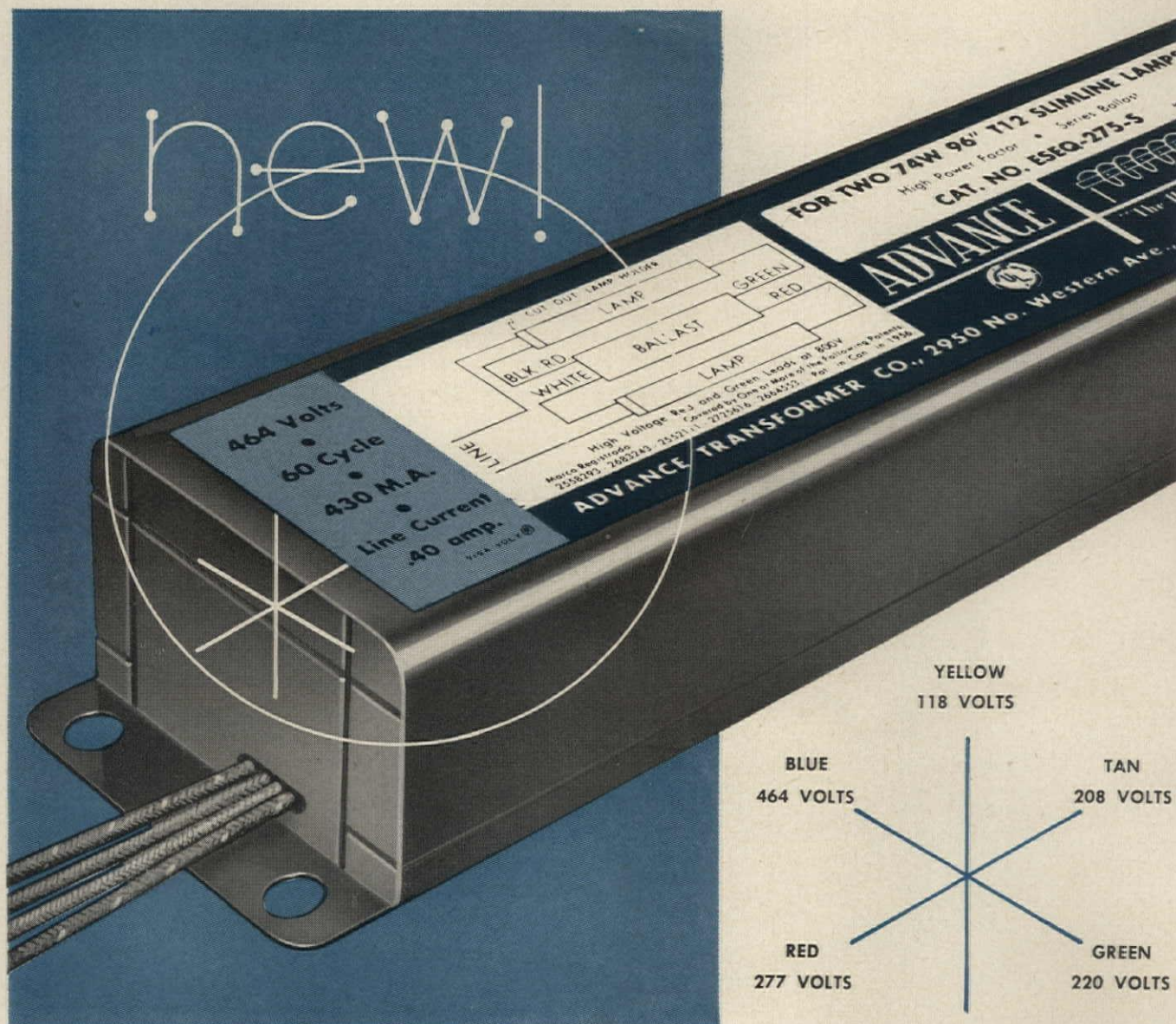
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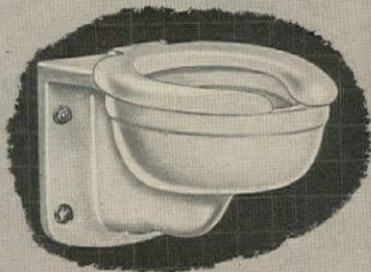
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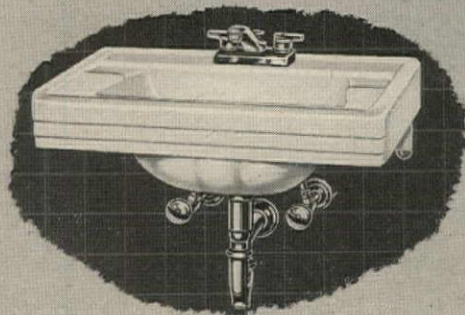
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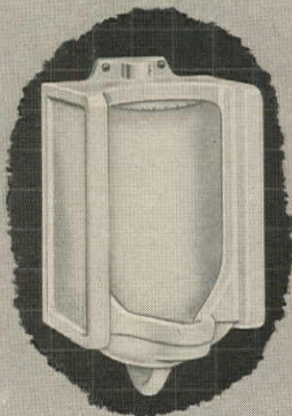




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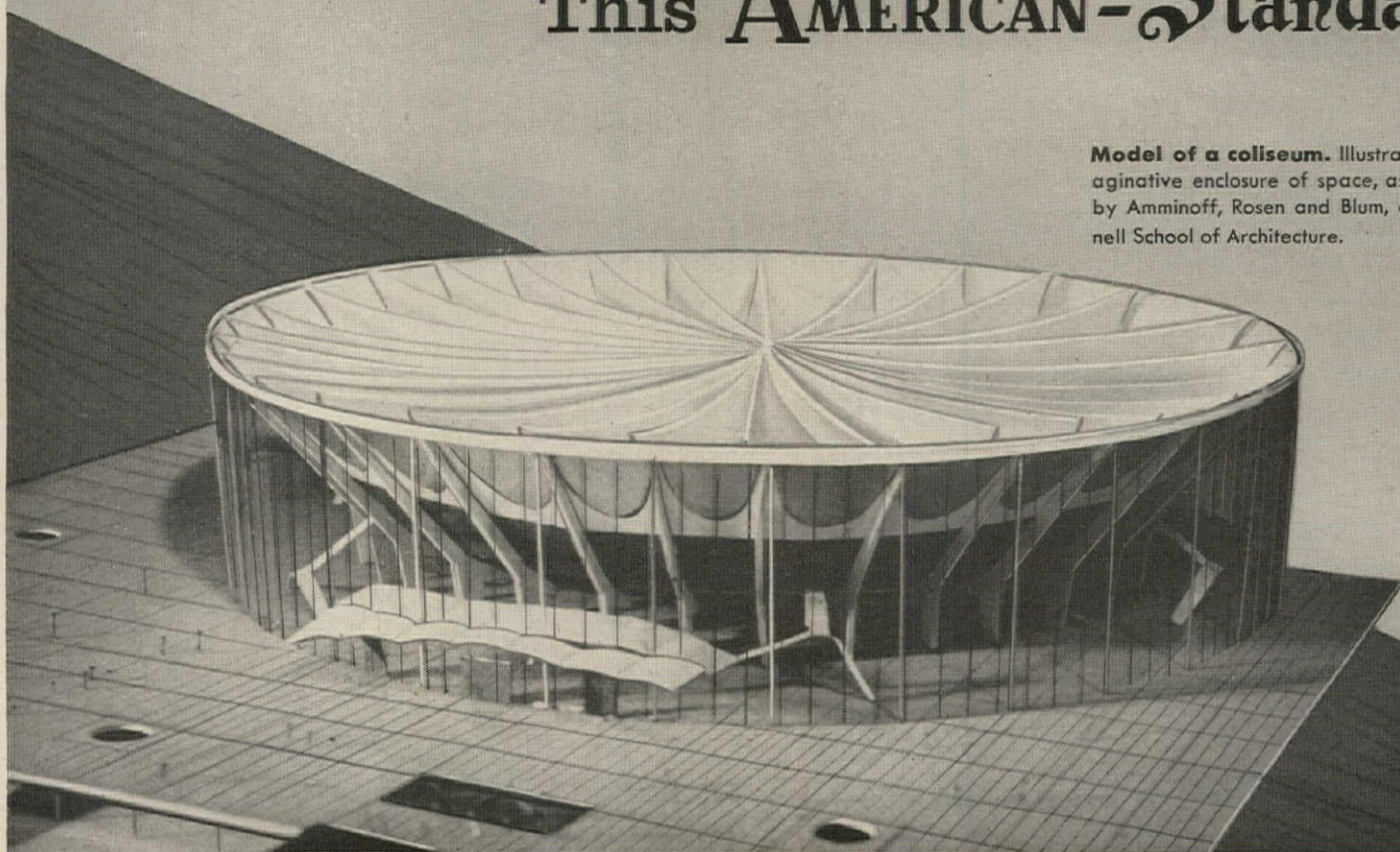
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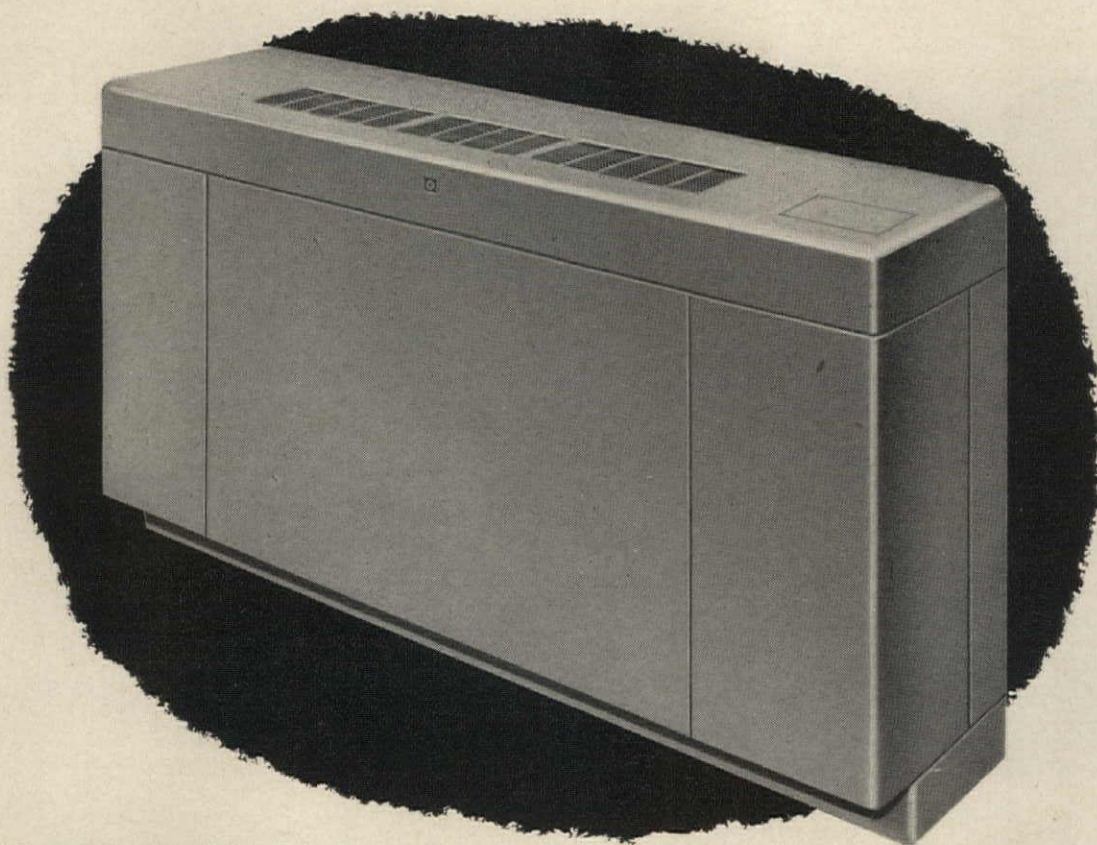


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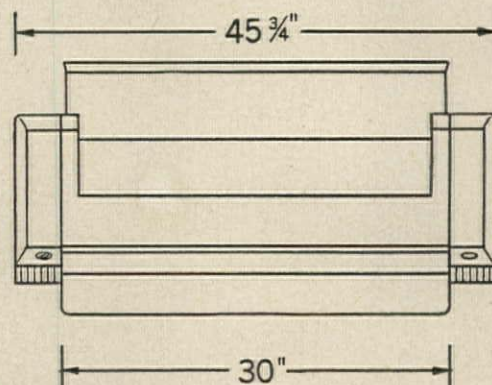
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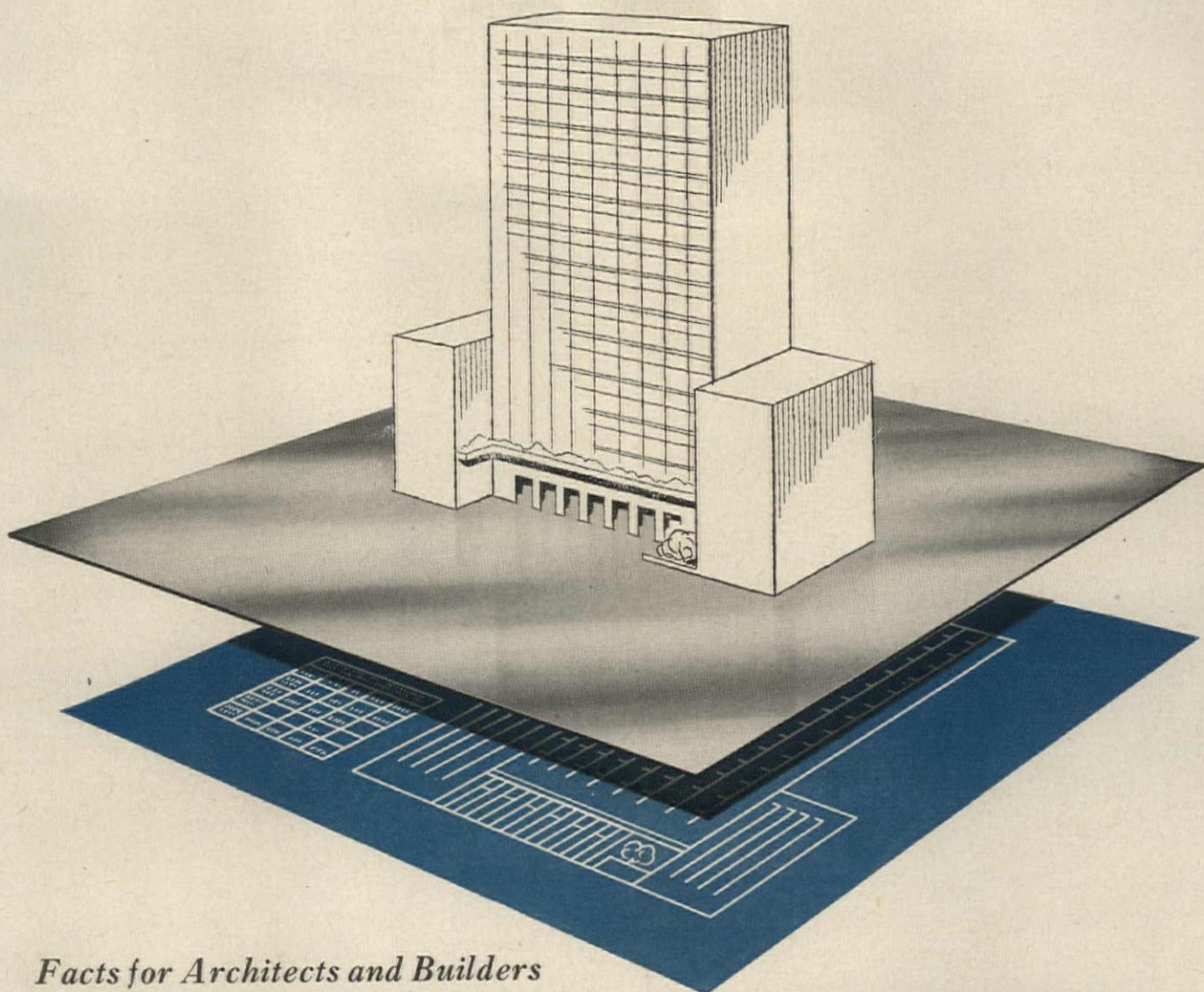
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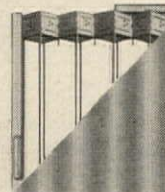
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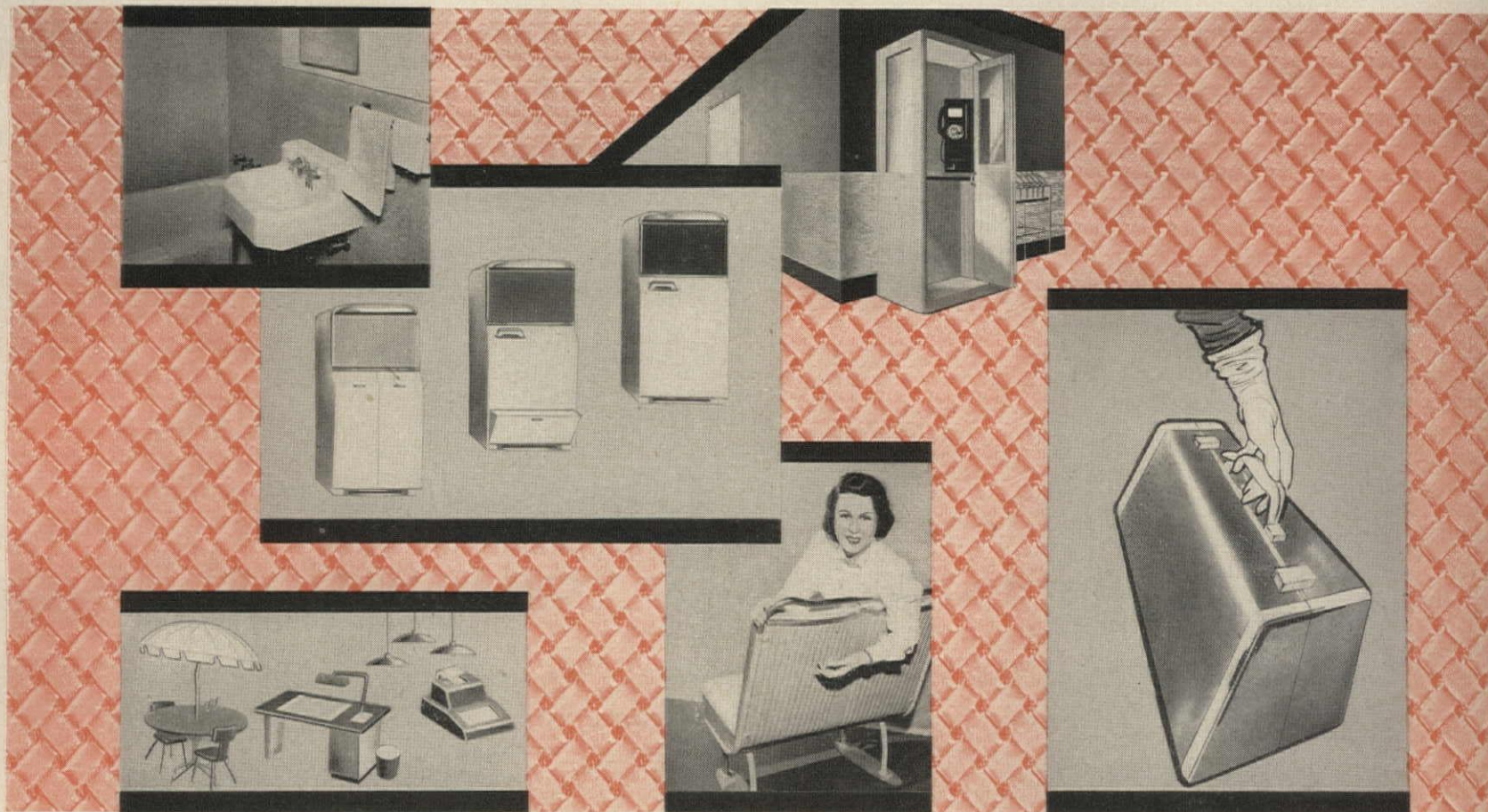
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Marvibonded metals are laminated in flat sheets before the product is formed. However, neither finish nor bond is affected by bending, crimping, drilling, embossing, punching, or shearing.

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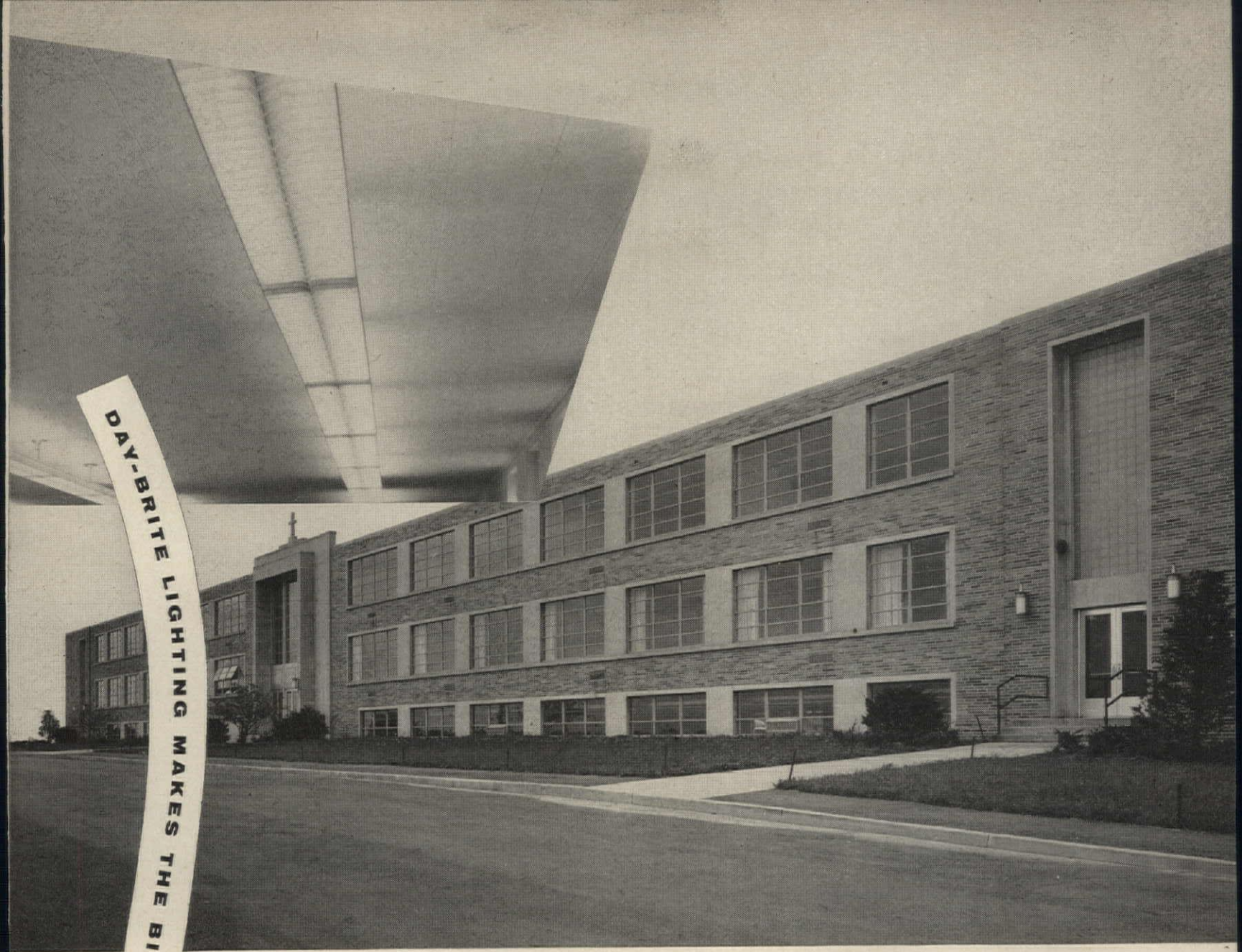
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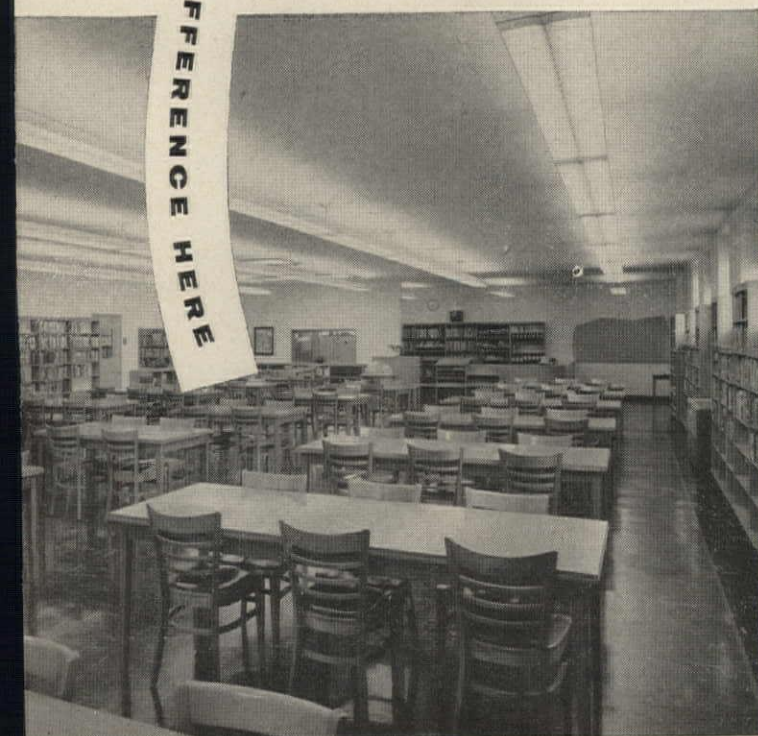


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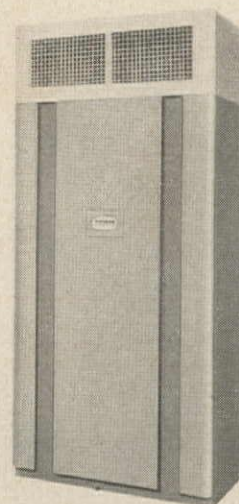
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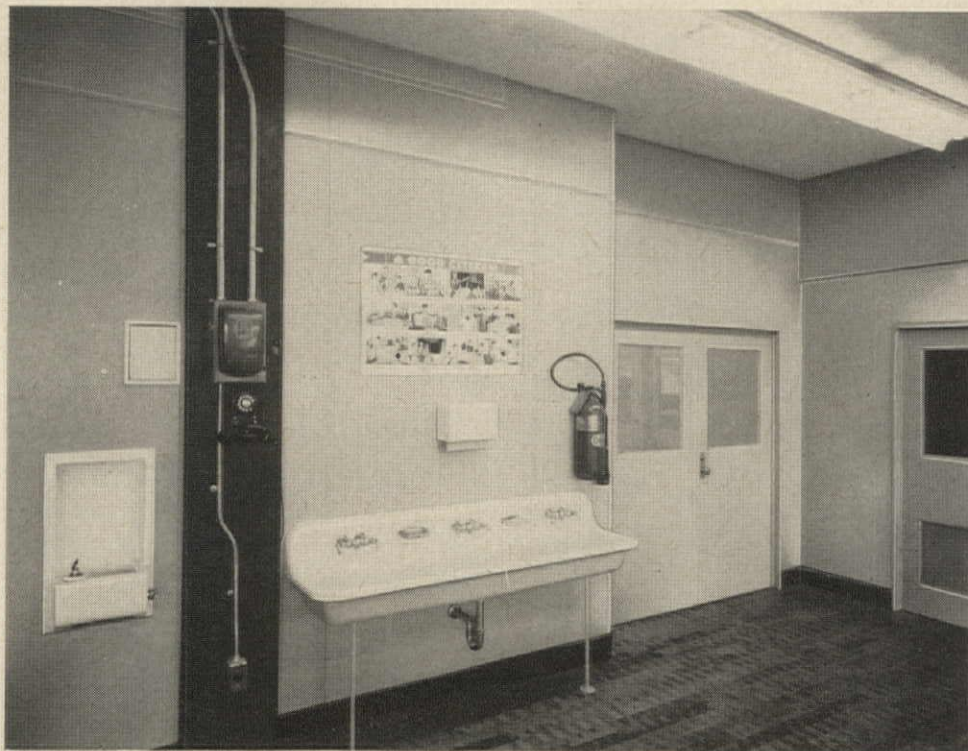
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Pneumatic flexibility solves the most intricate problems as easily as the simplest. Pneumatic control can be applied to all types of air conditioning and to all makes of equipment. In short, it can meet the exact needs of *any* installation!

Pneumatic control offers other, equally important, advantages. It's far simpler than anything else you can use. It has far fewer components. It has fewer parts subject to failure. It's easier to operate and much easier and less costly to maintain. It functions accurately and reliably with a minimum of supervision—there's nothing to require constant checking and adjustment.

These and other advantages are bringing greater comfort, smoother air conditioning performance and long range operating economies to countless new buildings. The system in the impressive new Preferred Insurance Company Building, shown here, is a good example of what pneumatic control can do for you, too.

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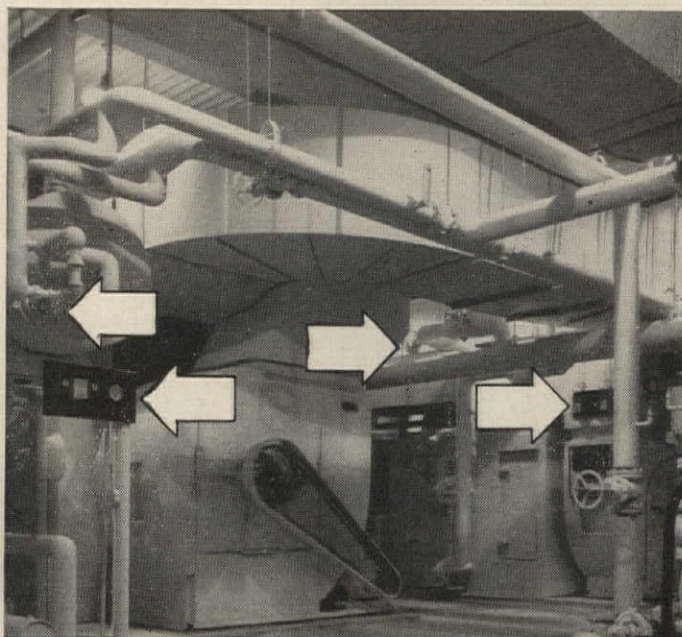


Two large central fan systems supply either cooled or tempered primary air to other sections of the building. Perfectly conditioned air is discharged into each of 29 zones, as directed by strategically located Room Thermostats controlling reheat coils in the system.

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Empty, full or only partially occupied, the dining room is always comfortable. Here, Johnson Thermostats easily compensate for changing occupancy levels. Throughout the building all air conditioning equipment, the refrigeration compressor, the main and domestic hot water converters, the fan coil converter, convectors and exhaust fans are controlled by Johnson pneumatic equipment.

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Installed by Hogue-Stone Flooring Co. of Oklahoma City.

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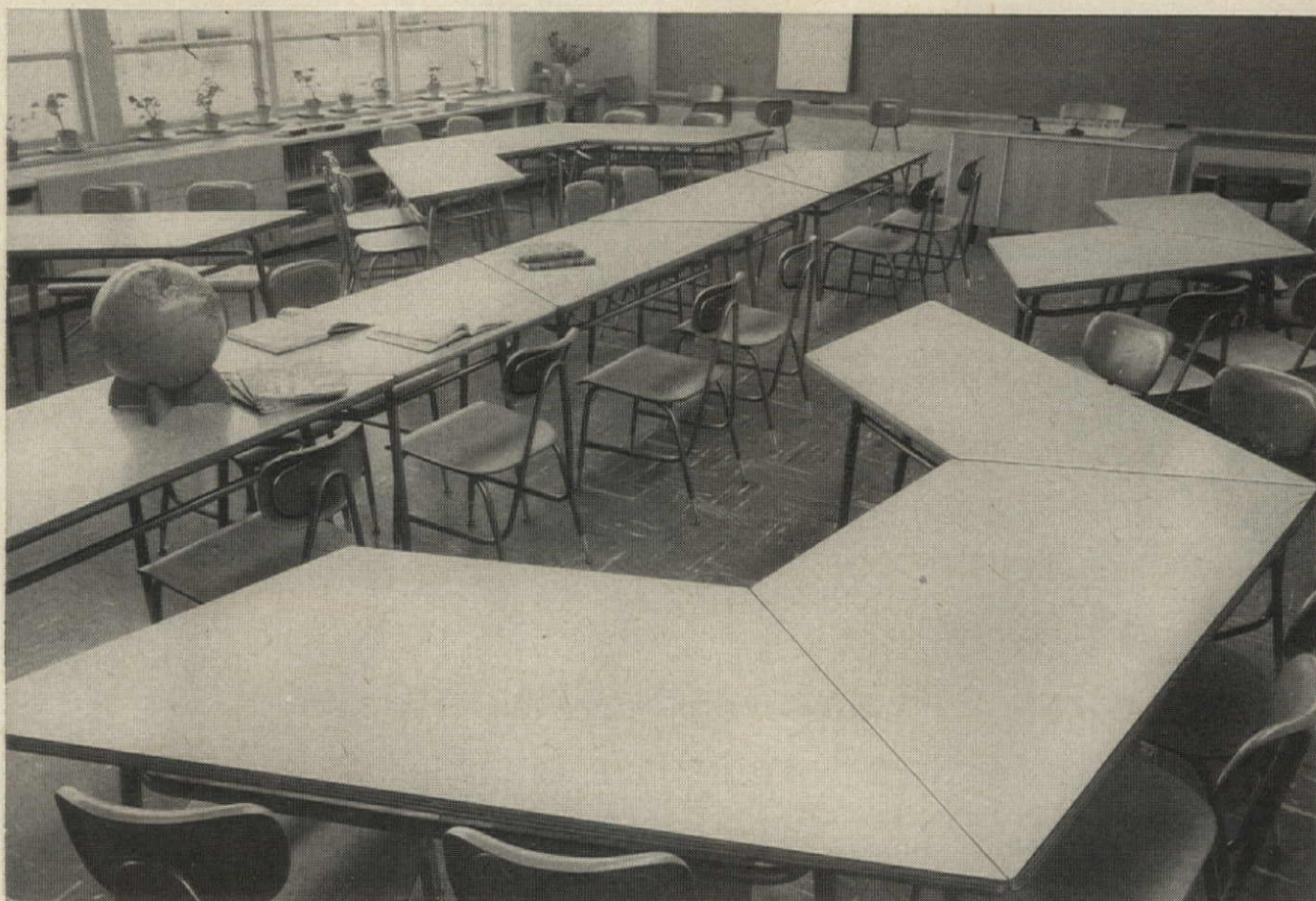
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Samsonite Classroom Furniture



ACTUAL PHOTOS TAKEN AT OAKS SCHOOL NO. 3, OCEANSIDE, N. Y.

Classroom furniture not only has to be smart and comfortable, it must be able to withstand the phenomenal abuse pupils give it. Samsonite Classroom Furniture does all this. It's engineered with the newest, strongest, anti-mischief defenses in classroom furniture!

- Self-locking fasteners cannot be loosened with coin or knife.
- Countersunk rubber bumpers on desk lid cannot be pried loose.

- Tubular steel frame construction provides lightness of weight with no sacrifice of strength whatsoever.
- Resistance-welded joints are as strong as the frame itself!
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- Tablet arm and desk supports are made of continuous-length steel tubing.
- Plastic back support insures proper distribution of stresses.

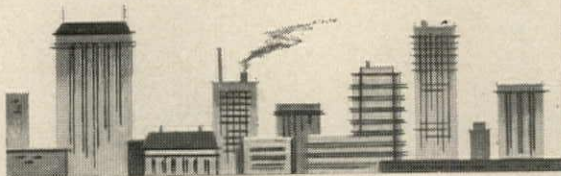


Dr. Walter S. Boardman, Superintendent of the Oceanside Public Schools, Oceanside, New York, says "Samsonite Classroom Furniture has fully met our expectations both in appearance and durability. It is comfortable, practical and requires a minimum of maintenance!"

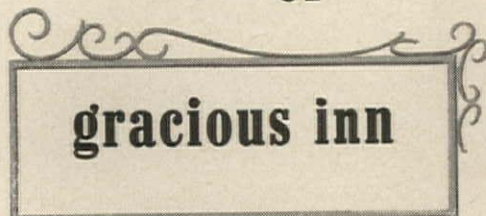
Samsonite strongest lasts longest

Shwayder Bros., Inc., Classroom Furniture Division, Dept. AF-4, Detroit 29, Mich. Also makers of famous Samsonite Luggage, Institutional Seating and Card Tables and Chairs for the Home. Merchandise available in Canada from Samsonite of Canada Ltd. Queens Highway, East, Stratford, Ontario

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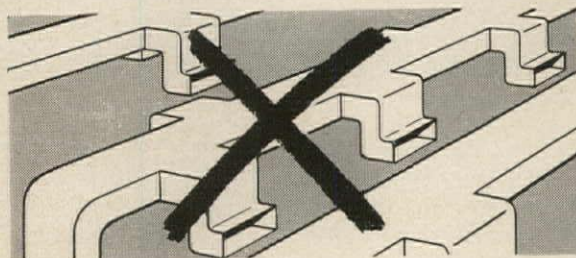
CONTEMPORARY motif of office is enhanced by the trim, modern styling of Modine AIRditioner. Quiet, individually-controlled air conditioning provides instant comfort . . . increases employee efficiency.



COLONIAL atmosphere with a modern touch — when Modine AIRditioners provide *fresh, clean air* . . . in every climate, in every season. They solve all air conditioning and heating problems — with performance, styling, economy.

Modine AIRditioners are the quiet way to air condition new or existing buildings

MODINE AIRditioners provide *quiet, personalized* air-conditioned comfort 365 days a year for any room with a turn of the switch. And this fingertip control enables occupants to *feel comfortable instantly* — without unpleasant air blasts. What's more, Modine styling blends units with any design . . . be it traditional or contemporary, new construction or remodeling job. In addition, Modine AIRditioners dehumidify, clean and circulate *fresh air* for maximum enjoyment. They're ideal for air conditioning existing buildings, replacing unsightly radiators with smart heating-cooling units.



NO EXPENSIVE DUCTWORK is needed with Modine AIRditioners. Same water supply and return piping, plus drain, is used for both central boiler and chiller.

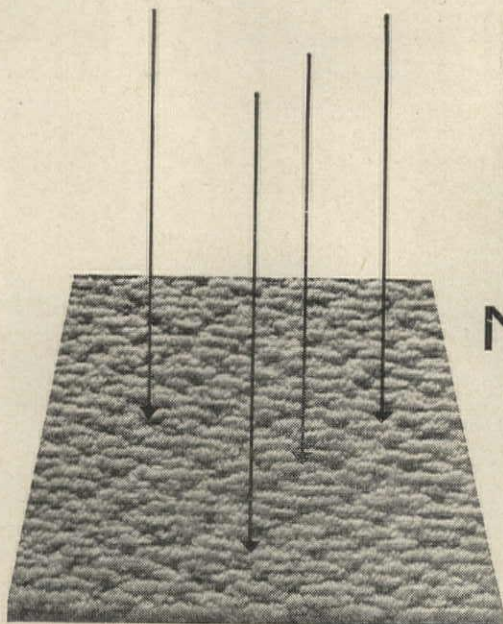


Ask the Modine representative listed in your classified phone book for Bulletin 755—or write Modine Mfg. Co., 1507 DeKoven Ave., Racine, Wis.

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Airditioners ❄️
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A-1313



New studies prove carpet highly effective in sound control

Tests performed at a nationally-known acoustics laboratory prove — beyond doubt — carpet's ability to control sound:

- 1 Carpet absorbs air-borne noise as well as many materials used solely for sound control.
- 2 Carpet virtually eliminates floor impact noises in the room and in rooms below.
- 3 Carpet absorbs 10 times as much noise as other types of floors and floor coverings.

When you specify carpeted floors, you're providing your clients with a high degree of sound control in addition to exceptional savings on maintenance. For, in heavy traffic areas, where sound control is usually most needed, carpet cuts floor maintenance costs over 50%.

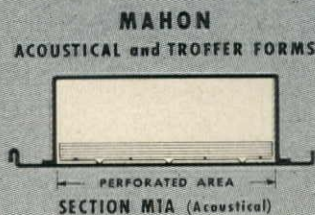
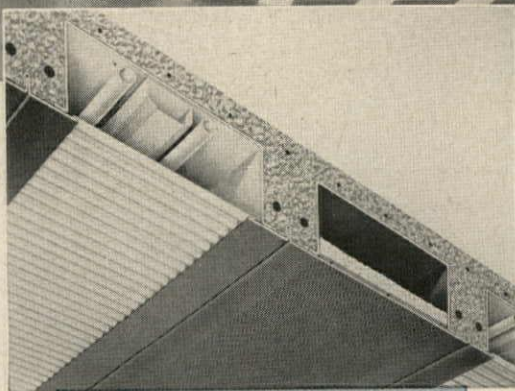
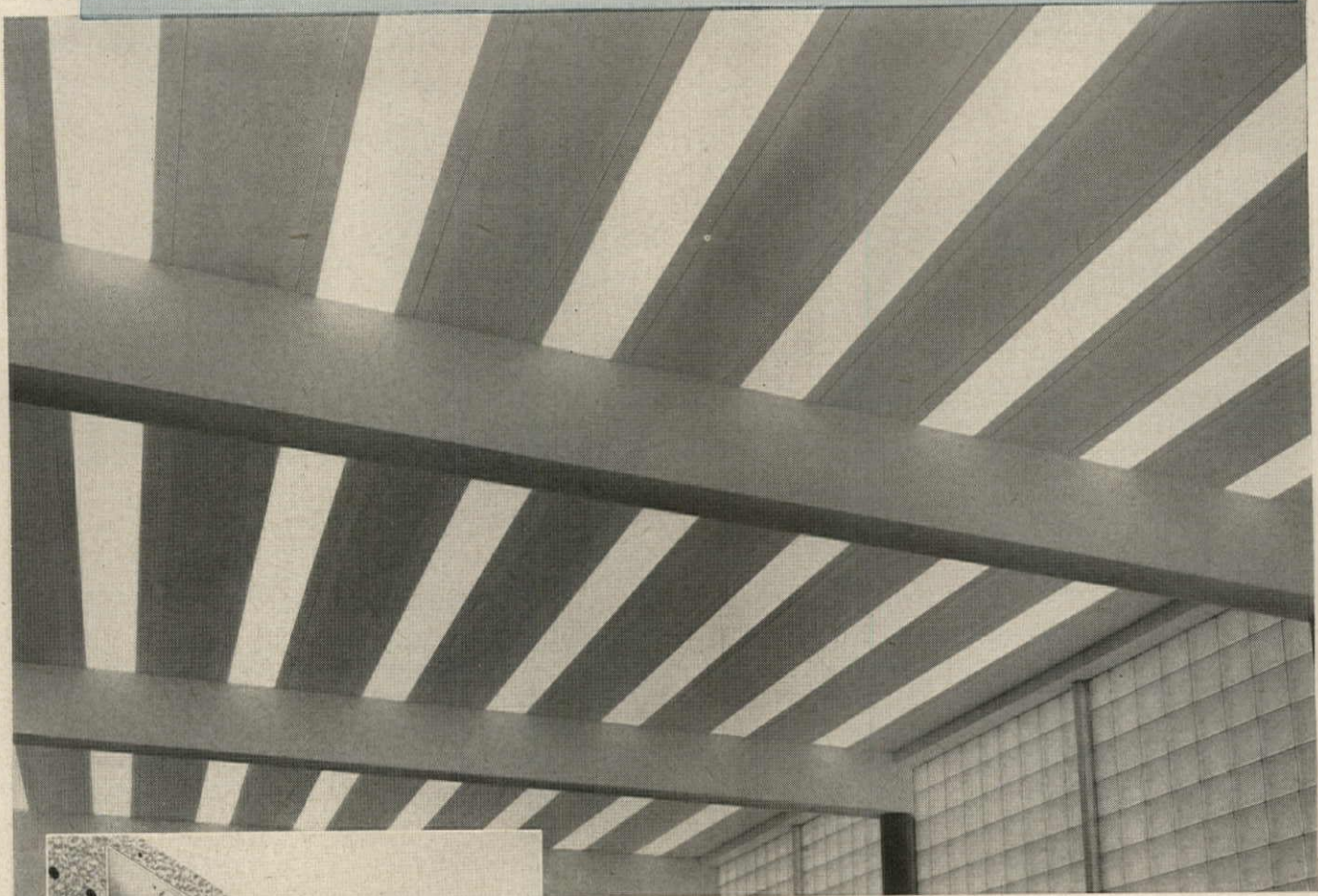
In addition, of course, carpeted floors offer all the prestige, beauty, comfort, and safe footing for which they've always been preferred.

Send today for your file copies of "Sound Conditioning With Carpet," the complete study of carpet's ability to control airborne and impact noises. You'll discover that, in addition to the beauty, dignity and safe footing carpet brings to any area, it is the most economical sound control you can specify. If you don't already have your copy of "Cutting Costs With Carpet," a comparative study of the maintenance costs of carpeted and non-carpeted floors, ask for that, too. Write Dept. A-2, Carpet Institute, Inc., 350 Fifth Avenue, New York 1, New York.

Specify carpet designed and made for the American way of life by these American manufacturers:
 Artloom • Beattie • Bigelow • Cabin Crafts • Needle tuft • Downs • Firth • Gulistan
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ACOUSTICAL and TROFFER FORMS



... for Acoustical Ceilings with Recessed Lighting!

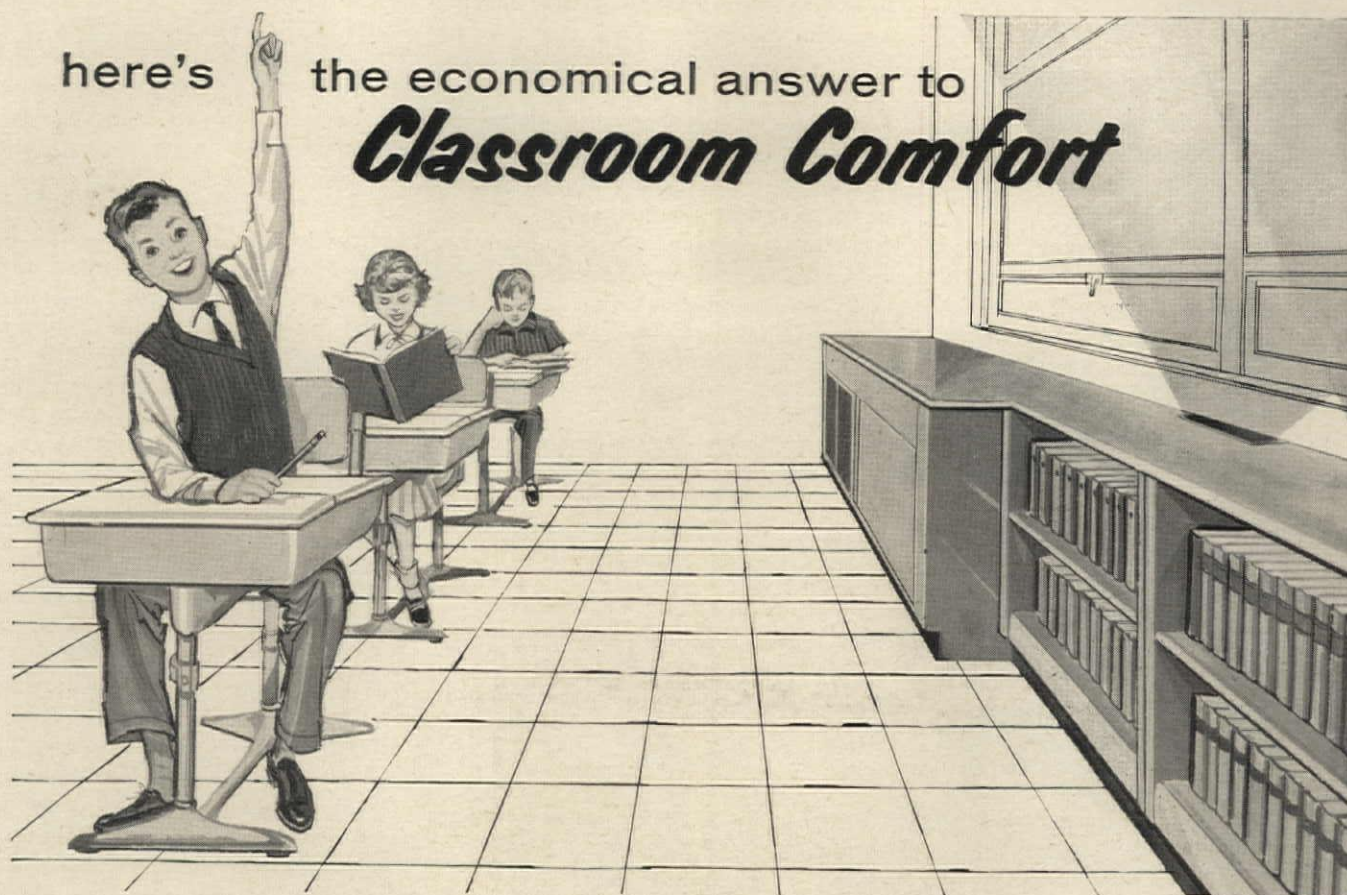
Mahon Acoustical and Troffer Forms provide an effective acoustical ceiling and recessed lighting as well as serving as the permanent forms for concrete joist and slab construction of floors and roofs. These are long span units which are integrated with and supported by conventional concrete beams at each end. Only a minimum of temporary shoring is required at mid-span during pouring and curing of concrete. This is permanent, fireproof construction which has a broad application in modern buildings . . . it is used extensively for auditoriums, school classrooms, and in other rooms where an acoustical ceiling with recessed lighting is desirable. Mahon Troffer Sections are also available for use with Mahon M-Deck Sections to provide a combined roof and acoustical ceiling with recessed lighting. In this arrangement the long span M-Deck serves as the structural unit, the interior finish material and the acoustical treatment—all in one package. Purlins are eliminated . . . M-Deck Sections span from wall-to-wall or from truss-to-truss. Some of these Mahon Forms and Structural Sections do not appear in the current Sweet's Files. Why not have a Mahon sales engineer call and bring you up to date on Mahon products now available for Floor, Roof and Ceiling Construction?

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Above is the Ceiling of the Auditorium in the Eugenia Mettetal School, Detroit, Michigan. It is one of 50 rooms with Mahon Acoustical-Troffer Ceilings. Shreve, Walker & Associates, Inc. Architects. Alfred A. Smith, Inc., Gen. Contractors.

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In one complete package for the individual classroom, Norman engineers have designed everything needed to assure economical and healthful classroom comfort — automatically.

And, because the Norman gas-fired, forced air heating and ventilating system is specifically designed for modern schools, it offers important advantages for new school construction and expansion programs. No separate building or extra space is needed for a central heating plant. Simplifies expansion programs — just add another Norman unit for each additional classroom.

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NORMAN COMPLETE PACKAGE PROVIDES:

- Perimeter forced air distribution at proper angles for constant classroom comfort without draft or stale air pockets.
- Automatic operation cycles which include warm-up, daytime or occupied period, and nighttime period.
- Automatic ventilation with proper mixture of outdoor air and room air.

NORMAN COMPLETE PACKAGE INCLUDES:

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Please send complete information and specifications on the Norman Gas-Fired Schoolroom Heating and Ventilating Package.

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HOUSING PROGRAM

continued from p. 129

would be willing to put their funds into a proposition on the basis of a low yield and of recovery of capital only after satisfaction of long-term debt" (AF, June '55).

When Congress finally got around to giving FHA a special rental housing section in 1938, they wrote it with the distrust that has characterized almost all federal action in this area. Section

207 of the 1934 act was amended to provide for an expanded rental housing program. But, while FHA was allowing 90% of a liberal valuation on new home mortgages, the new section provided for only 80% of final value for rental property. It started the long-held philosophy of FHA that a builder should be an investor, should have a substantial equity position in a rental project. Homebuilders, on the other hand, could carry on a more conventional operation, getting a takeout from an investor as soon as federal mortgage insurance was

set. One old-time Washington observer has noted that "There is apparently in FHA a strong feeling that if you let the initial sponsor get his money out of the project, he will let it go to pot."

Section 207 has been singularly unsuccessful in getting any volume of rental housing built. Since its inception, only 76,000 units have been built, and after building to a postwar peak of 11,856 units in 1954, starts under 207 have fallen off sharply. Last year, only 250 units were built. Some of this drop-off is undoubtedly due to tight money, which has caused a shift of investment, and some due to the urban renewal program, which has caused a shift in the focus of project-builders' activities.

Cooperative housing under Section 213 of the NHA has made an even smaller contribution to the total of rental units built than has 207. Co-ops have labored under the curse of being unknown (and often considered "socialistic") in most of the country outside New York and a few other large cities. Over 60% of all FHA-insured co-ops have been built in New York. But co-ops were given a break that 207 has never gotten—builders could get insurance on mortgages up to 95% of replacement cost.

Co-ops will probably get a shot in the arm, and soon. Impressed by recent testimony that co-ops provide cheaper rental housing than most other forms of housing, and that people living in them now generally favor them, some congressmen are already considering giving even more special assistance to co-ops than is now provided by Fanny May. Perhaps they will even write new legislation designed to boost co-op building and tie it in with urban renewal. Whether Congress can break down traditional biases against cooperative housing is the big question. But co-ops have at least found some backers in the Congress, which is more than can be said for some of the other rental housing programs.

Public housing is perhaps the best example of a rental program that has been crippled by federal lassitude and private sniping. Today, public housing in its present form is considered a political and social liability, not only by its enemies but by a few groups that once favored it strongly. There are over 550,000 units of public housing now being managed under the aegis of PHA, but the current administration is making no bones about its distaste for it. Federal legislation has been largely responsible for making public housing unpalatable to local communities, which initiate the demand for it. Red tape

continued on p. 232



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ARCHITECTS • BENHAM RICHARDS AND ARMSTRONG

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- When The Greenfield-Mills Restaurant Co. decided to rebuild their restaurant at 77 South High, Columbus, it was natural that Van, who had installed their other restaurants at Columbus, Detroit, Cleveland and Cincinnati, should furnish all the equipment.
- Evolved after careful study of self-service restaurants all over the country, limited only by the lot size, every idea for lower food costs, less food waste, greatest customer appetite satisfaction was incorporated.
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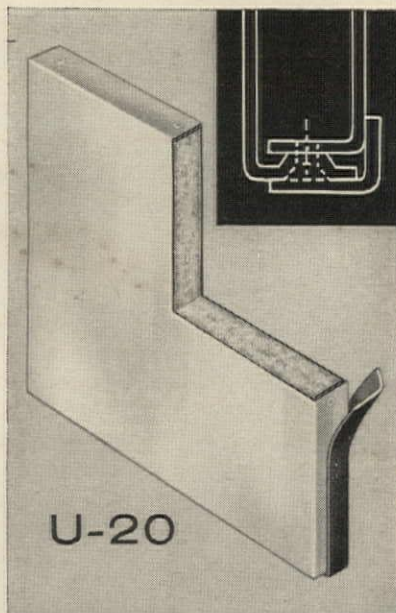
Erie

MECHANICALLY-FASTENED

**PORCELAIN
ENAMEL
PANELS**



This unretouched photo clearly illustrates adherence failure in a laminated panel of other manufacture recently removed from a major building project.



U-20

THE

Erie

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ERIE porcelain enamel panels are designed for positive, permanent assembly through the use of mechanical fasteners—not adhesives! The U-20, for instance, is composed of two nested pans, insulated with preformed Fiberglas and secured with corrosion-resistant screws applied through the flanges of both pans. Bosses at all assembly holes (see detail) minimize metal-to-metal contact to limit thermal transfer and all panel edges are sealed with pressure-sensitive vinyl tape to control moisture access.

There is no substitute for engineered construction like ERIE's. If you want structural durability to match the proven service life of porcelain enamel, specify ERIE. Our new Sketch Book IV explains the design and fabrication of ERIE panels. Write for it.

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HOUSING PROGRAM *cont'd.*

and the social segregation that invariably results from the highly institutionalized architecture of most projects have made them unpalatable. Income limits and the fact that most public housing is today minority housing have kept many desirable low-income families out of public housing, and in too many projects the hard core of residents are welfare families, and problem

families. A few congressmen are worried about the state of public housing, but it could be political suicide to try and put the program back on a high-volume basis now. Without administration backing, and with strong opposition from vocal builder and real estate groups, public housing isn't likely to get very far unless there is a big change in how it is handled. In the past fiscal year, only 7,202 units of public housing were built (35,000 a year have been authorized). So far in fiscal 1957, the pace is even slower.

Public housing as a means of providing rental housing for low-income families is stagnating.

"Just giving the stuff away"

Only once in its history did FHA ever spark any significant volume of rental housing—and that time the spark became an explosion from which FHA still bears the scars.

Early in World War II, Congress passed Section 608 of the National Housing Act as a means of getting privately financed emergency rental housing built. During the war, it was just about the only rental housing that got built. In 1947, faced with 11 million returning servicemen and many more shifting civilians, Congress and FHA decided that 608 was the best means for providing the vast amount of rental housing that would obviously be needed during the period of demographic dislocation.

Congress and the White House urged FHA to push the 608 rental program hard, mostly because of the pressure of returning veterans. The HHFA annual report for 1947 notes that "A large-scale educational campaign was undertaken by FHA during the first quarter of 1947 to acquaint builders and investors with the government aids available for rental housing; FHA representatives attended more than 600 meetings all over the country with builders and investors for this purpose. The effects of this campaign were reflected in the applications made during 1947 covering more than 139,000 units. . . ."

There were huge luncheons, conferences and almost a carnival atmosphere when the postwar 608 program was kicked off. FHA had been handed a liberal rental building act—providing for mortgages of up to 90% of estimated cost and granting special high cost allowances for high-rise structures—and was out to sell it.

It didn't take much selling, of course. And it wasn't long before most builders and investors knew that FHA would give a handsome enough appraisal of a 608 project so that one could get a 100% valuation on the FHA-insured mortgage alone, and frequently pocket a handsome chunk of change besides. Everyone in the industry knew what was going on, but Congress didn't really get on to it until 1954 after the program had been discontinued. Then it broke like a tidal wave over FHA's head.

Actually, it was the Bureau of Internal Revenue that stirred the 608 pot to a boil. Some congressmen were aware, by 1954, of the situation, but

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HEADLINE MAKER



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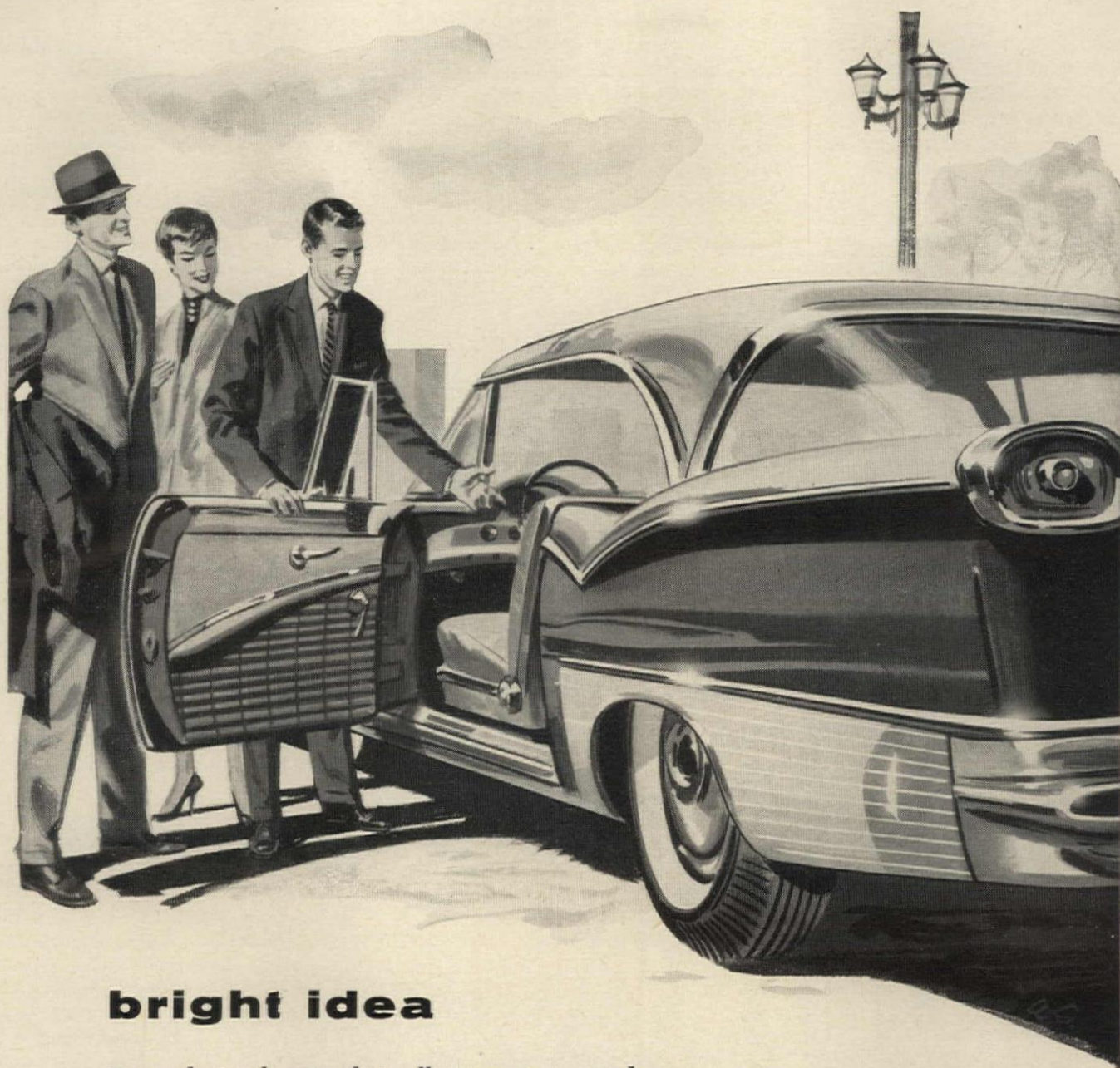
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HOUSING PROGRAM *cont'd.*

were going slowly because of political implications. But BIR refused to let builders take "windfall" profits on 608 projects as capital gains, and their noisiness eventually set the whole thing off.

As the congressional hearings got underway, the magnitude of the "windfalls" became evident. Out of 7,070 projects insured under 608, FHA figured 1,149 of them produced some

windfall for the builders. Some estimates as to how much the windfalls totaled ran to \$500 million, most of which had already been distributed among stockholders and therefore was well-nigh irretrievable. The Justice Department was consulted for possible criminal action against builders who took advantage of the 608 largesse, but it was completely frustrated. "The FHA has torpedoed any chances for criminal prosecution," said Assistant Attorney General Warren Olney, "because we can't prove the federal government was

defrauded in the face of FHA's statement that they were not deceived or defrauded—they were just giving the stuff away."

The reasons why not everything that was called a "windfall" was clearly reprehensible, in a complex world, may be told—some day.

But FHA had accomplished something with 608. It had built a lot of housing (some of which was abysmally poor in both construction and architecture) and it had recognized that the main point in rental housing "is not of getting money in but of getting it out." The 608 program died amid sighs of relief in 1954. Never since then has FHA allowed any builder to get his money out of a rental project. Never since then has any significant volume of rental housing been built.

Renewal: the cobwebs of distrust

Stung by the 608 experience, and with a background of apprehension about rental projects anyway, the federal agencies today are working with the most challenging—and most complicated—urban renewal program ever devised. It isn't hard to see why so much of the urban renewal program is bogged down by unmanageable investment and construction concepts. But it is hard to comprehend why Congress, the administration or someone hasn't shaken the program into working order yet.

Urban renewal got its kickoff with Title I of the Housing Act of 1949. In the preamble to that act, Congress came closer than it ever has to enunciating a far-reaching program for federal housing: "The Congress hereby declares that the general welfare and security of the nation and the health and living standards of its people require housing production and related community development sufficient to remedy the serious housing shortage, the elimination of substandard and other inadequate housing through the clearance of slums and blighted areas, and the realization as soon as feasible of the goal of a decent home and a suitable living environment for every American family, thus contributing to the development and redevelopment of communities and to the advancement of the growth, wealth and security of nation."

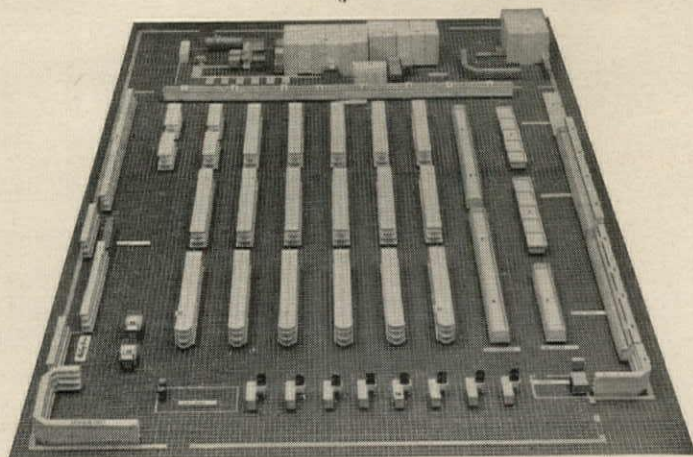
All Title I provided for, however, was a slum clearance program, without any aid to private financing of rental projects. It provided capital grant and loan funds to localities in the form of a write-down for cleared land in slum areas. But Title I, like much revolutionary legislation, was studded with booby traps and unworkable ideas. An

continued on p. 236

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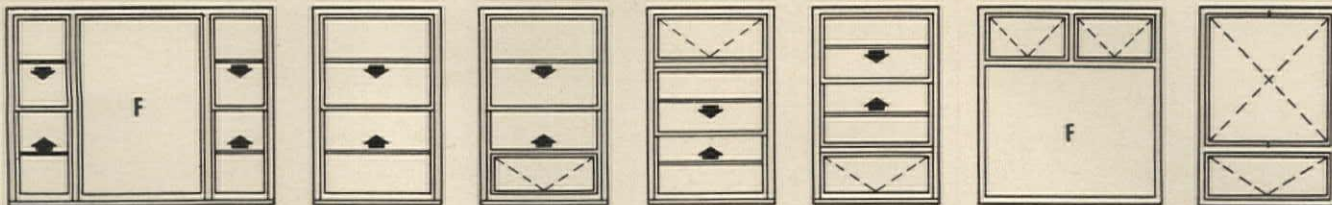
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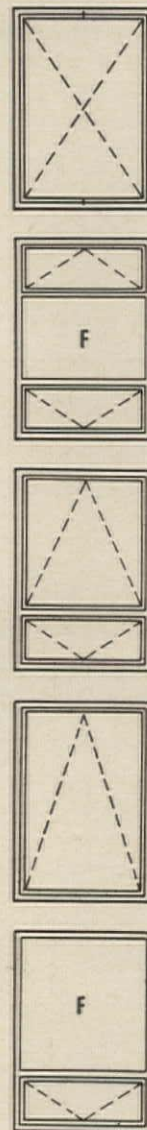
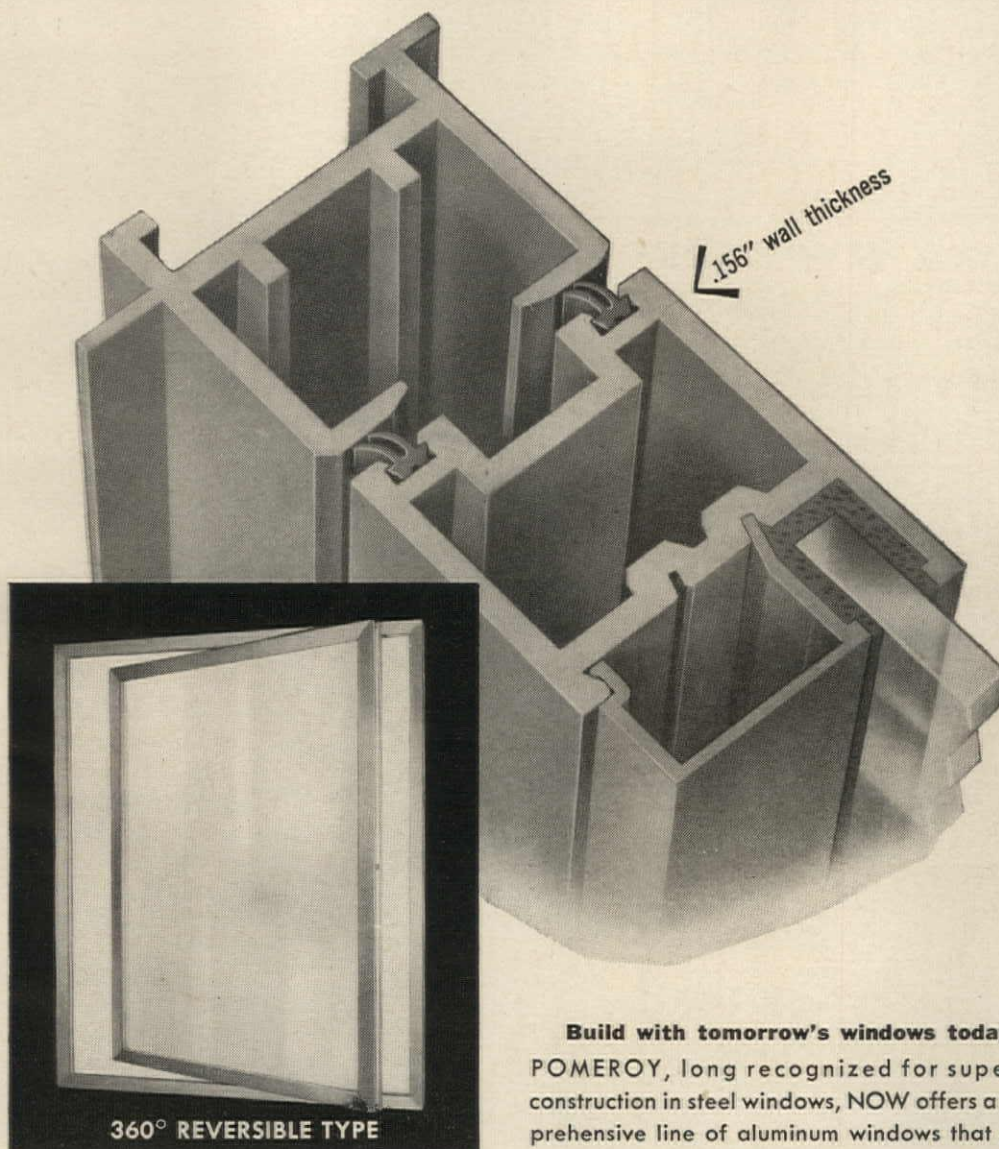
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HOUSING PROGRAM *cont'd.*

HHFA lawyer, with six years of experience with the act, says: "Title I is the most complicated grant-in-aid program in the federal government." HHFA Administrator Cole is more emphatic. "Title I," he says, "was completely unworkable."

Coupled with Sections 220 and 221 (for relocation housing) of the 1954 amendments to the NHA, Title I is

somewhat more workable. But FHA is still operating with the cobwebs of distrust dimming its vision. It requires the builder to maintain an equity position (though a minor one) in a 220 project. It requires an elaborate cost certification procedure which makes windfalls impossible (and thereby negates the need for any equity being kept in the project, say some builders). When 220 was originally set up, there was no statute of limitations on the cost certification system, thus allowing FHA to question, at any future time,

costs of building. Just last year, Congress amended this so that costs are final upon FHA approval of them.

This suspicion is apparent also in the charter for 220 projects. Conceived as an instrument of partnership between the builder-sponsor and FHA, it is in fact an instrument of FHA domination. FHA can question, many years after the fact, the wisdom of maintenance contracts and management fees, and if it decides they are unreasonable, the project could be in default unless all "unreasonable" expenditures are paid within 30 days. FHA, under the charter, controls rents, and the builder-owner cannot raise rents without FHA approval.

Both HHFA and FHA show the same distrust toward municipal agencies that they do toward private builders. "They go over every little detail of what the local people are doing," complains a builder. This leads to duplication of effort, and useless wrangling among the agencies. The vital concept of a workable plan for community action in slum clearance and renewal is often dogged to death by constant demand for revisions and close-herding by federal agencies.

Next problem: suburban renewal

At the same time that federal government struggles to get urban renewal going, it is contributing to the problem of the urban fringe at a much faster rate. Last summer, Albert Cole put his finger on what is perhaps the most significant feature of this growth, its opportunities and challenges: "It is clear that if suburb and city are to be healthy, and are to maintain a logical relationship with each other, there is a crying need for metropolitan area planning. This is a particularly vexing problem and we have just started to scratch the surface. Metropolitan areas cross county and even state lines. Any attempt at unified planning raises extremely complex and delicate questions of intergovernmental relations. We have not yet made significant strides in this field, but we must somehow organize to meet the challenge. Otherwise, it may not be long before we are faced with the need for a program of suburban renewal. The application of foresight and planning would be cheaper."

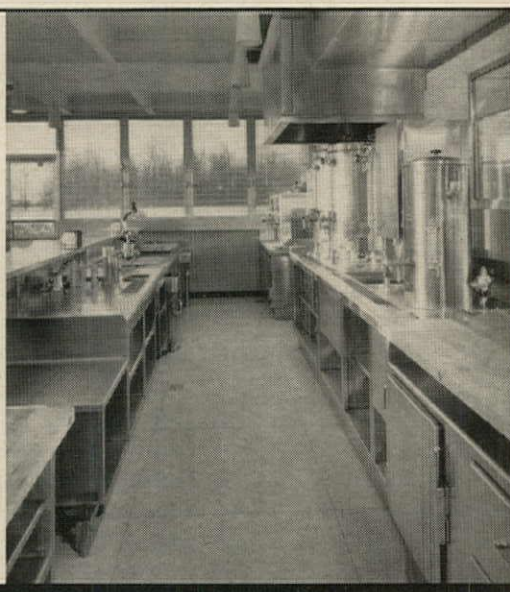
Not long after Cole's declaration, Catherine Bauer eloquently put the same concept into cold hard statistics and sounded its implications (AF, Sept. '56). By 1975, 55 million more people in standard metropolitan areas (these areas have already received 97% of the population growth since

continued on p. 244

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ALUMINUM

Title I was passed). Nine million more people in big central cities, 46 million crammed into the burgeoning urban fringe.

The federal government bears a major responsibility for the creation and growth of this urban fringe. FHA and VA homebuilding programs have sucked thousands of young families out of central cities into the suburbs. While giving them decent, if often uninspiring, housing, they have created problems that could dwarf even urban renewal. The federal homebuilding programs have promoted sprawling, unplanned communities, laced with helter-skelter transit routes. The "FHA town," acre on acre of ground-hugging monotony, is indeed the trademark of the postwar building boom.

The real needs

Not long ago, Cole agreed with Senator Joseph S. Clark (D, Pa.) that "the present program is inadequate" and said he had some amendments to offer. But some farseeing congressmen are already thinking about a whole new program, not just more patchwork on the existing one. They are already seeking a program that will better meet the housing needs of the country, particularly those of groups and areas that have been by-passed by the rush of prosperity.

Back in 1948, a joint congressional subcommittee estimated an "optimum construction" of 17.2 million new units by 1960. This was predicated on 39.5 million families by then. We are already 1.6 million units behind this "optimum" and we now have more families already than were figured for the year 1960.

A few months ago, a Senate subcommittee polled 150 mayors to see what housing needs were in their cities. Almost all of them (93%) cited a need for some type of aid for low- and middle-income housing, as well as housing for minority groups and the elderly. Private builders will add that this does not necessarily mean a need exclusively for public housing.

These unmet needs point up the weaknesses in the fabric of our federal housing and building policies. Congress, or at least some members, are aware of these weaknesses, and by next year there will probably be a major overhaul of all federal housing policies. Before this is done, subsequent articles will take a careful look at the operations of the agencies—and the legislation—that make these policies what they are, and what they are not.



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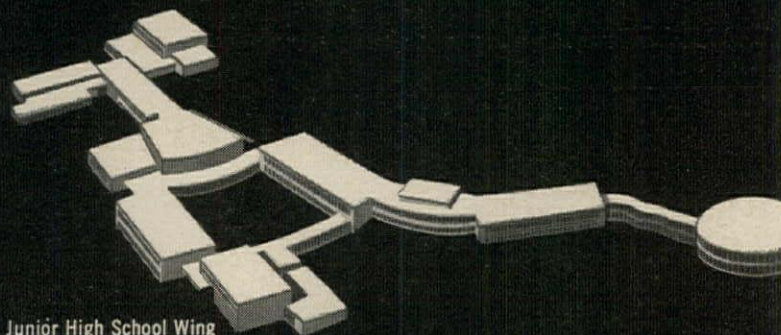
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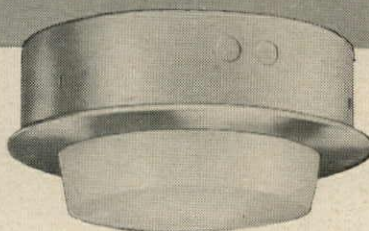


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LAND

continued from p. 151

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And the prices were fantastic. Around Miami, inside lots that existed on plans only sold for \$8,000 to \$20,000 each, and seaside sites went as high as \$75,000. Land in the Everglades that was not even worth its taxes was bought and sold for \$100 or more an acre. Frederick Lewis Allen's chronicle of the twenties, *Only Yesterday*, cites the instance of one lot in the business center of Miami Beach that sold for \$800 in the early days of the development and then sold in 1924 for \$150,000. At Palm Beach, a strip of land worth \$240,000 before the boom brought \$800,000 in 1923; a year later, after it had been subdivided, it sold again for \$1.5 million, and by 1925 there were those who said it was worth \$4 million. And these were not just Gold Coast markups. All through southern and central Florida, and even as far north as Jacksonville, prices were doubling and redoubling from month to month.

Boom with a difference

In what has happened in Florida in the last decade there is just enough taint of the twenties to make people self-conscious. At least, this seems the only plausible explanation for the fact that most real estate men start their conversations by assuring you that this boom is really different, that today's land prices are based on a sound, rounded economy, and that growth, as one of them said, "has not been so abnormal as it might appear and often is thought to be."

The truth is, of course, that this boom is different, though not quite so

different as local boosters would like one to believe. For one thing, the forces behind it are new. Florida this time has had industrial growth along with its playland expansion; more than 5,000 factories are now scattered around the state, and manufacturing employment has climbed 66% above the 1947-49 level, compared with an average national gain of 6%. On top of this, agriculture and tourism have broadened out. Hog and cattle raising—now a \$55 million-a-year business in the inland sections of the state—today supplements the citrus groves and truck farms. Tourism, which the State Chamber of Commerce estimates poured more than \$1 billion into the state last year out of the pockets of six million vacationers, has shifted more and more to a year-round basis. Meanwhile, permanent population is up 60% over 1946, and the Florida Development Commission figures that an average of about 2,500 newcomers a week are now moving into the state.

All this has been reflected in the land market. Gone are the days of wholesale binder trading, of get-rich-quick by mail, of nickel-and-dime speculation. Florida's land boom today resembles far more the suburban price spiral which has been sweeping the rest of the country than it does the grand spree of 30 years ago. Like suburbia, its land development has been tied fairly tightly to use, and subdividing, at least so far, shows a reasonable correlation to homebuilding activity and to the demands of nonresidential construction. Even with the revival of a mail-order business in lots ("only \$10 down starts purchase of your big ¼-acre Florida homesite," says one northern newspaper ad, which asks readers to check a box below for the number of lots they wish reserved in their name), the vast majority of people buying sites appear to be buying them for their own use, and their commitments—\$600 to \$2,000 spread through monthly payments—are not economically out of line.

But where the new boom ends and the old one raises its head is in speculation—not amateur plunging to be sure, but the systematic uptrading of prices by professional real estate operators and organized syndicates. Much of the raw acreage of central and south Florida is now being sold in huge tracts—1,000 acres or more—and is moving between syndicates with profit

continued on p. 250



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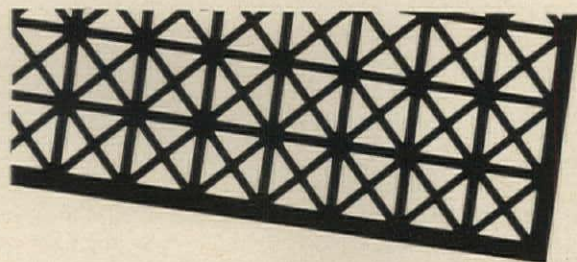
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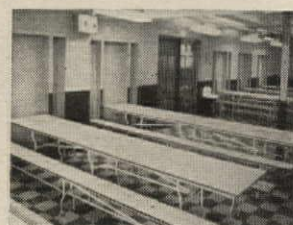
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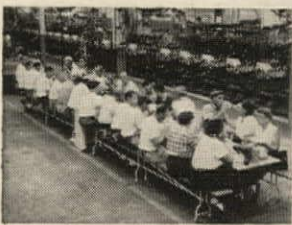
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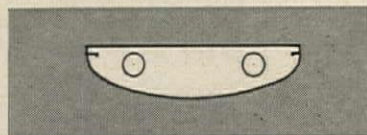
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margins of 50% and up on each sale. (A few years back, margins were running as high as 100%.) In the central lakes region and along the coasts, the parcels sold are smaller, 10 to 20 lots at a time, but the markups for speculators and developers are just as great. As one real estate broker put it candidly: "We wouldn't sell acreage to a customer unless we could guarantee, or at least fully expect, that we could sell it for him to another holder within the year at a good profit."

Water sells

The most precious land in Florida is, of course, its waterfront, and nowhere are the signs of the old boom stronger than along its east and west coasts. In the Ft. Lauderdale area, oceanfront land that was \$500 a ft. shortly after the war is now a minimum of \$1,500, and around Miami Beach, the bottom price is \$2,000. The site for the Fontainebleau Hotel, which was once part of the Harvey Firestone estate, reportedly cost \$2,500 a front ft. when it was bought three years ago, and since then the price of sites north of the hotel has gone as high as \$3,000 a ft. A single lot in Bal Harbour, near the new Americana Hotel, which sold in 1954 for \$2,000 a front ft., resold in 1955 for \$2,665 and is on the market today for \$3,000. On a larger scale, the 400 acres, which one-time Cuban entrepreneur José Alemán bought on the island of Key Biscayne shortly after the war for \$2 million have since sold for \$9.5 million, and in a span of a little more than 40 years have appreciated from 5¢ an acre to \$20,000.

Along the lower west coast, shore-front lots that were \$50 an acre in 1947 have shot up as much as 1,000% since. Two-thirds of the way down the Florida Keys, in Marathon, land swept bare by a bulldozer, on an arid coral base, now sells for \$5,000 a quarter acre if it has access to water, which in this case means canals dredged to dry out the mangrove swamps and to provide fill.

Though the prices of inland acres don't even come close to these seaside values, their markups over 1947 are just as high and, in some cases, higher. Small residential lots in northwestern Miami, some of which sold for \$100 in 1948, now bring eight to 12 times that. One builder in northern Dade County who paid \$1,100 an acre for a 40-acre tract in 1953, had to pay \$2,000 for neighboring acres eight months later, and \$2,750

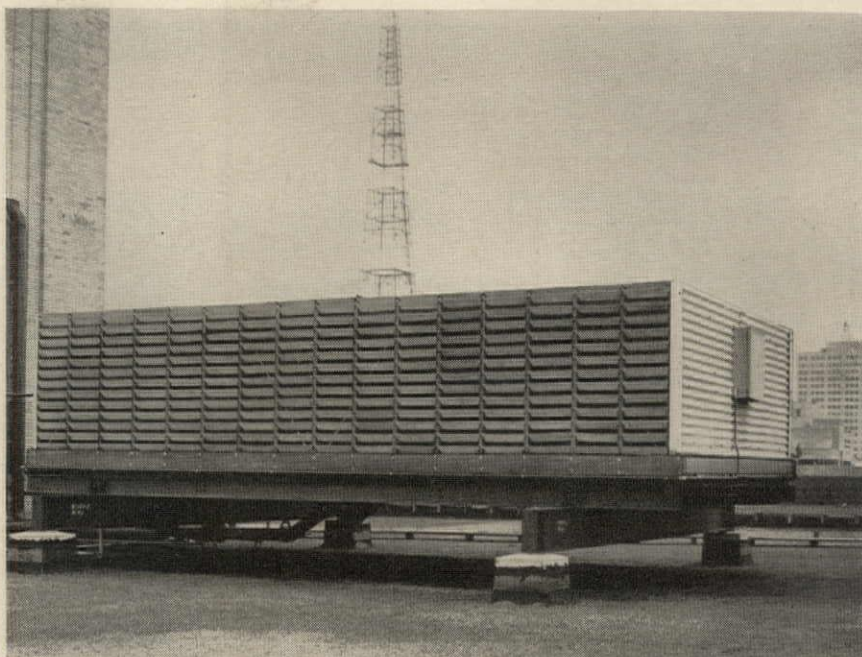
for more ground a few months after that. Last year, when he sold off a 30-acre unimproved piece of his holdings, the price was \$6,000 an acre. For marginal land—sites in the southern part of the county that are only 6' to 8' above water level—prices have moved up from an average of \$400 an acre after the war to \$3,300, and pure swampland is bringing anywhere from ten to 20 times what it would have 20 years ago. In the estate areas, where land is zoned one-acre minimum, prices have gone from \$1,000 an acre in 1950 to \$7,000, with prime sites worth \$8,000 to \$10,000.

To the west of Dade in Collier County, where there has been heavy upper-income residential growth since the war, waterfront property is now six to eight times the price it was ten years ago. Lakefront lots around retirement-heavy Orlando are now worth \$2,000, while cattle land has climbed from \$50 an acre in 1947 to \$200 today. For citrus groves, anywhere in the central part of the state, buyers are now paying \$2,500 an acre.

In Pinellas County, the site of St. Petersburg, an expanding tourism has been mixed with heavy immigration by pensioners and now with industrial growth. Of a population gain of 98,531 persons in the area since 1950, more than 93,000 is due to migration. This was lightly developed tourist country in 1947, with an excess of lots left over from the twenties that sold in groups for as little as \$200 and \$250 (without street surfaces, sewers, etc.). By 1950, though, the excess was worked off, and since then land prices have risen so sharply—some markups amount to 1,000%—that values are driving out the dairies, beef ranches and older citrus groves. One ten-acre tract of land on a railroad that sold for \$150 an acre in 1951 brought \$7,000 in 1956. Another tract of 80 acres that was picked up for a total of \$100 or less in 1943, according to tax revenue stamps on the deed, sold last spring for \$165,000. On St. Petersburg's south side, where boom platting never reached in the twenties, 32 acres bought for \$16,000 in 1951 sold in December, 1953, for \$29,700, and in 1955 for \$66,000. Along the water—on Treasure Island—shorefront prices have hit about \$800 a ft.

So far, among real estate operators at least, there is no strong feeling that this boom has run its course, or even that it has begun to level off. "Any-

continued on p. 254



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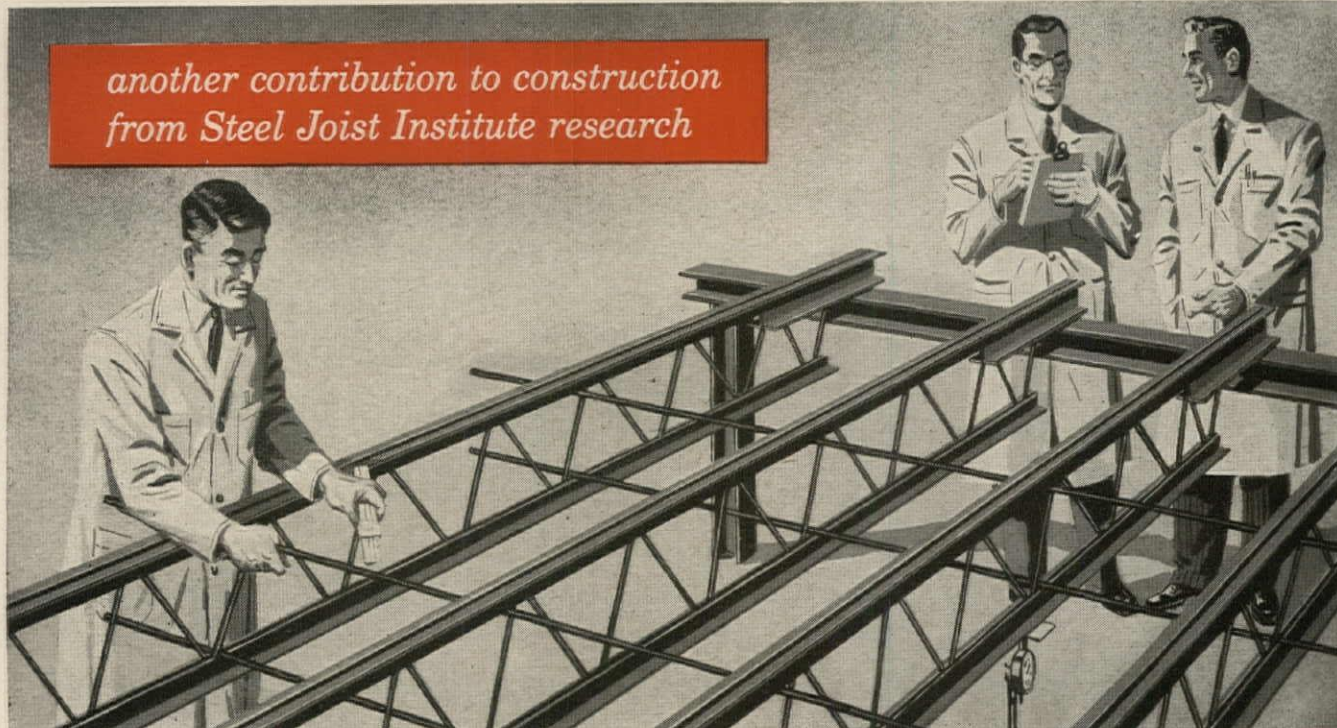
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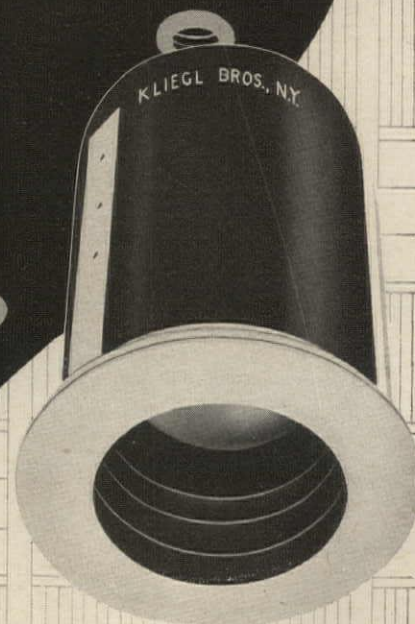
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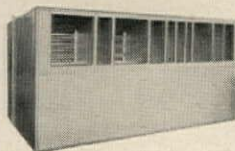
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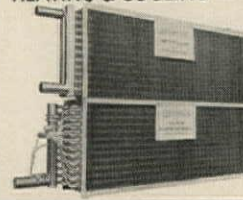
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LAND *cont'd.*

thing you hold will increase in value," says one syndicate operator, "even if it is overpriced now." And this, generally, is the tone of what forecasting is being done.

Just the same, there are ominous signs. For one, there has been more and more evidence in the past few months that some of the people who have been holding big acreages are feeling the need to make their investments pay off and are beginning to cut prices in an attempt to get out from under. Further, it appears that in some areas at least, the rate of subdividing may be getting dangerously far ahead of use. Around Ft. Pierce, for instance, 15,000 acres, enough space for 45,000 lots, have been sold for development in the last year. All told, there are less than 30,000 people in the area now, and the average population increase has been only about 1,000 a year.

Finally, there is the matter of Arthur Vining Davis. The 89-year-old board chairman of the Aluminum Co. of America has reportedly been putting about \$1 million a month into Florida land, and today, in addition to owning an estimated one-eighth of the usable real estate of Dade County, he has tremendous holdings in Broward County (Ft. Lauderdale) and around St. Augustine and Tallahassee. What might happen to land prices if Davis, or his heirs, were suddenly to start dumping this acreage on the market is something people prefer not to think about.

Snow and mountains, too

For some of the resorts that have boomed in other parts of the country in this great era of leisure spending, there is, of course, no precedent from the twenties. Thirty years ago their land was in farms, ranches, woodlots—or just stood idle. No one even suggested them as resorts, and for these places the elevation to playground status is something completely new.

Mt. Snow, Vt., is one of them. Today it is probably the most fabulous new ski development in all the East. But when a syndicate headed by Walter Schoen-knecht moved into the area in 1954 to develop a slope and change the name of Mt. Pisgah, the little town of West Dover (population: about 200) had not had a new house built since 1885. Acreage prices had edged up only a little from their prewar level of \$5 to \$20, and there was plenty of cut-over woodlot, with road frontages, to be had for \$25 and \$50 an acre.

This year, an estimated 18,000 to 20,000 skiers and onlookers poured into Mt. Snow over the Washington Birthday week end, and the average throughout the winter has been running about 5,000 a week end. Prices of road-front property are now a minimum of \$1,000 an acre to \$1,250. Near the slope, the demand for ski-lodge sites has pushed acreage costs to \$2,000, while even in Wilmington, 8 to 10 miles away, land prices have doubled. One farmer who thought of selling his 140 acres and house for \$10,000 before Mt. Snow started, got the same price for just 45 stony acres last year and kept the house to boot. Though most of the old inhabitants thoroughly resent the boom, they're resigned to the fact that their land is probably going to make them a fortune, and that this is only the beginning.

Much of the same sort of thing has happened in Aspen, Col., where Industrialist Walter Paepcke took the lead in converting an old mining town into a winter ski resort and a summer cultural center. When development began at Aspen in 1945, you could buy a building site for \$15 back taxes; today comparable land brings \$1,500. One group of Texans, which bought 16 downtown lots in 1946 and 1947 for a total of about \$2,000, are now offering the package for \$100,000.

Away from downtown, 40-odd lots, bought for taxes in the early postwar years, sold for \$30,000 as a hotel site last year. In a new subdivision, 1/3-acre lots, priced at \$4,500 improved, are being carved out of ranch land that was bought for \$700 an acre two years ago. On the whole, raw land prices for acreage within a mile of Aspen now average about \$1,000 an acre, and the price climbs to \$3,000 if the site is near the river where water is easy to get.

Whether these tremendous markups in resort prices can be repeated over the next ten years seems doubtful. The initial impact of the new leisure market, which created the tremendous markups of land prices in the post-war era, is now spent. What seems in store in the future is a more normal, gradual growth of values. But as long as US income keeps rising, and Americans give in to the itch to go, there appears little chance that the price of resort and retirement land won't keep going up, as it has, with each new development.

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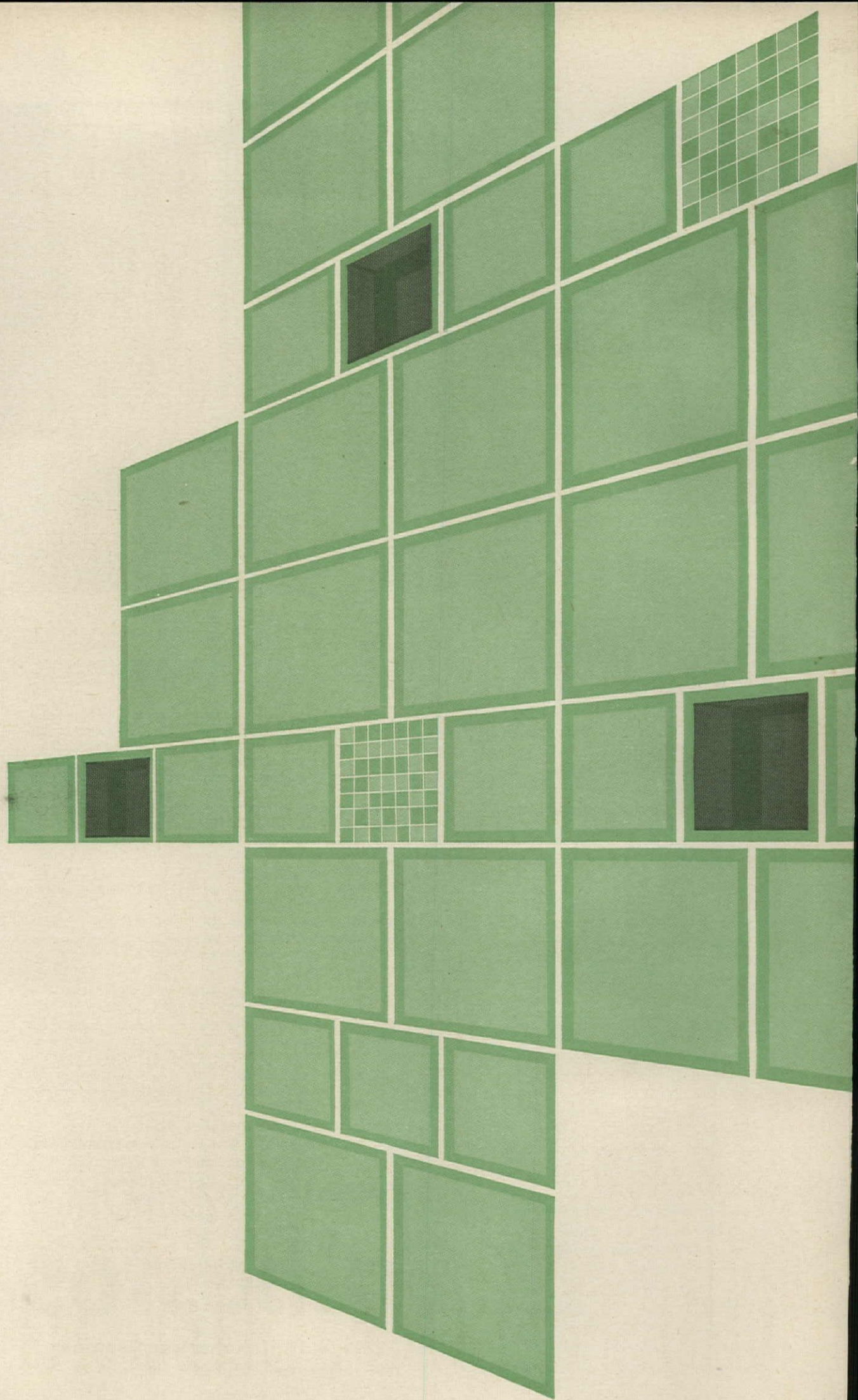


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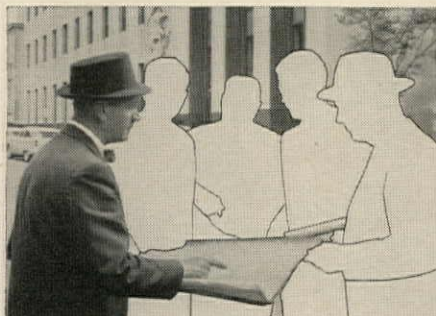
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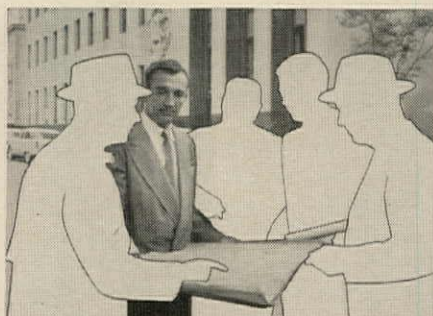
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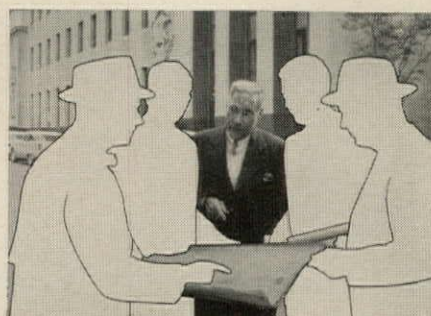
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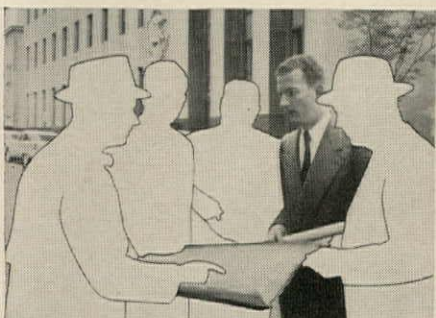
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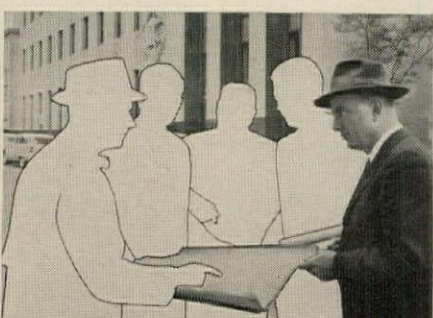
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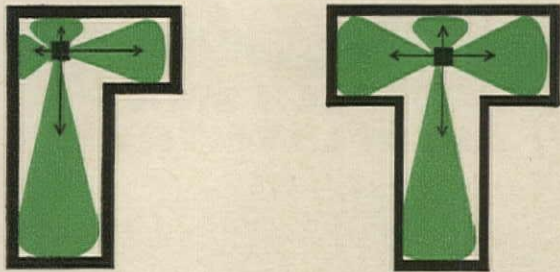
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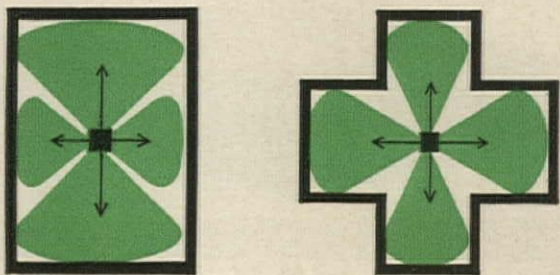
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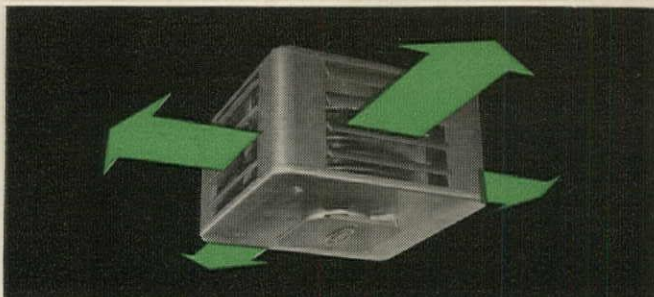
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Design allows facing to "give" a little under jarrings as boats dock.

LARGEST

*Porcelain Enamel
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REMODELING



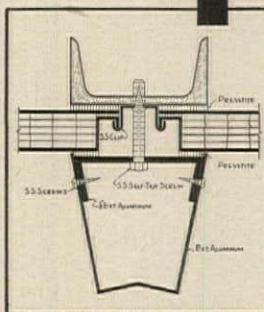
Formerly the two terminal buildings and connecting unit were antiquated pier structures.

50,000 square feet of porcelain enamel panels—manufactured and erected by Ing-Rich—were used in this dramatic modernization of the old Whitehall-South Ferry Terminal in New York City.

A distinctive structural and facing alteration carried out in light blue-gray porcelain enamel resulted in a modern-appearing curtain wall building.

Ing-Rich curtain wall experience involves nearly 50 major buildings and 100 schools.

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Extruded aluminum sections covering vertical joints give appearance of mullions extending from roof to ground level.

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MOROCCAN IGLOO

Oran Architect Marcel Mauri recently raised a cool dome for a wholesale market above the heat of Sidi-Bel-Abbes. The dome, made of prefabricated concrete sections, was built up igloo-fashion by means of an oversized interior crane. After retrieving the tip end of the crane's arm, and neatly plugging the exit hole, the interior and surrounding shops could be prepared for the dusty hubbub of Moroccan merchandising.

GHANA HONEYCOMB

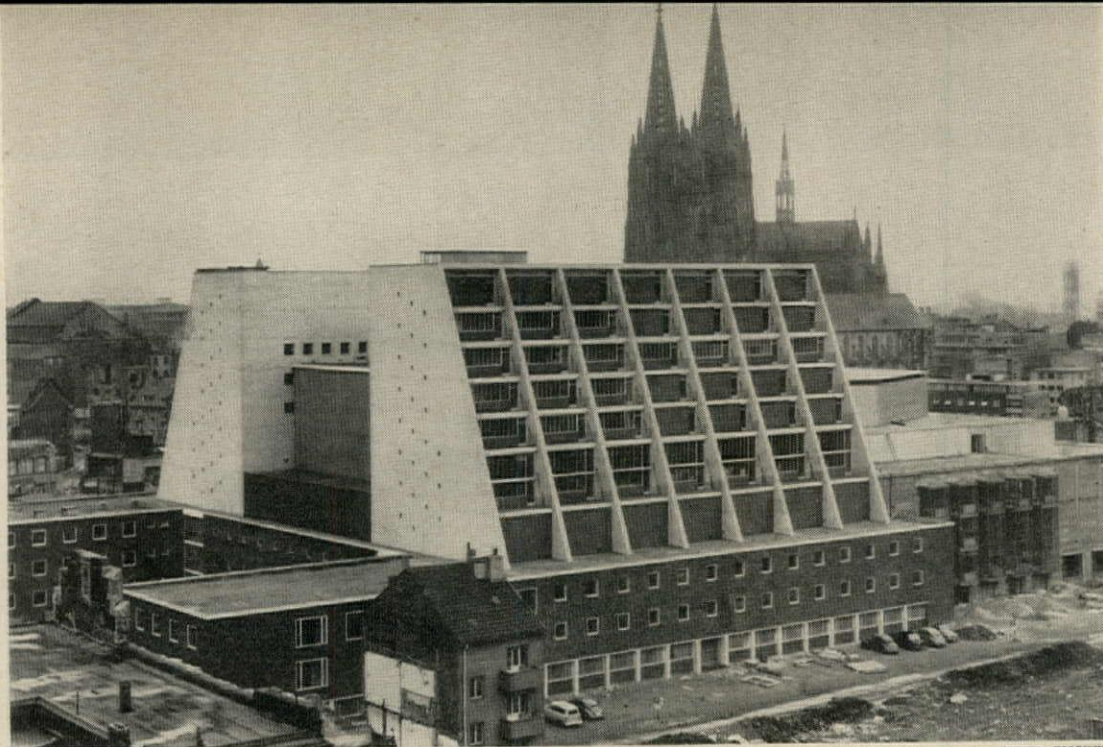
Last month the capital city of Accra witnessed the virtually simultaneous arrivals in Ghana of national independence and US Vice President Nixon. Included in Nixon's tour of the city was a visit to a new honeycomb-fronted library designed by London Architects Nickson & Borys. The building, which already houses 70,000 volumes, was officially opened when for-

mer Royal Governor Sir Charles Arden-Clarke cut a ribbon of *kente* cloth (material used in the togalike national costume). Like the other new government buildings standing nearby, the library is a gleaming example of noncolonial British investment practices (original cost: \$180,000). It is also a good-looking guide to a new nation's culture.



PHOTOS: (BELOW) BRITISH INFORMATION SERVICES; (OTHERS) MARCEL J. MAURI





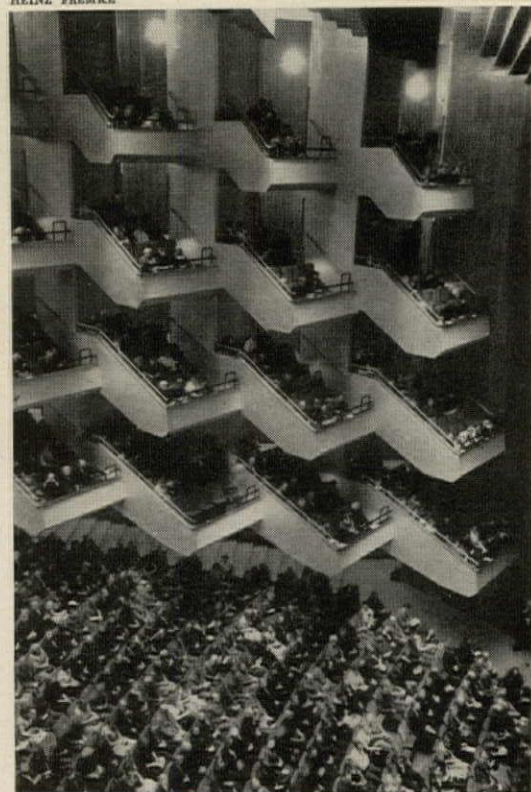
PETER FISCHER

THREE OPERAS IN GERMANY

In mid-May the doors of Cologne's \$3.8 million Opera House (above) will be opened to admit the controversial building's 1,386 first first-nighters. Though they may be charmed by the auditorium's acoustics and mechanical marvels (five stage settings can be erected at one time), it is doubtful that all will applaud Architect Wilhelm Riphahn's exterior design. The building, in fact, has already earned a hard-to-shed nickname, "Memorial to the Unknown Opera Director." A Cologne feature that is shared by the Hamburg Opera House (right) is the substitution of box-seating for

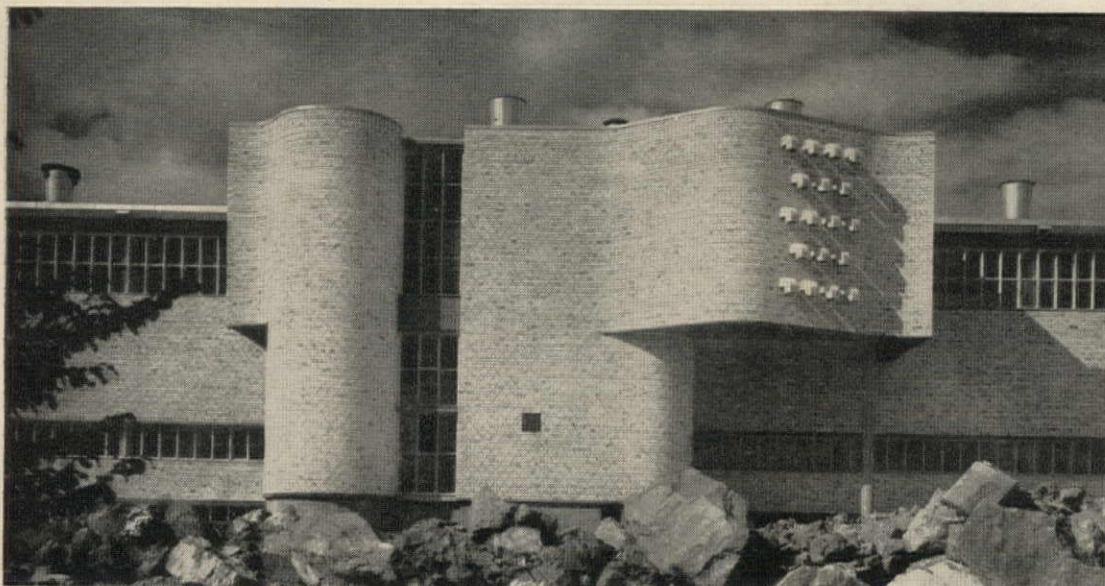
conventional balconies. But the resemblance stops there: Hamburg Architect Gerhard Weber favored a trust-worthy concrete and glass exterior for his slightly larger building. Another unusual cultural opus is Stuttgart's *Liederhalle* (below), designed by the architect team of Adolf Abel and Rolf Gutbrod. The building contains three auditoria arranged with an extraordinary lack of symmetry. In the largest, special acoustic reflectors are hung from the ceiling above the centrally placed orchestra; boxes jut out like saw teeth from the back wall's swooping contour.

HEINZ FREMKE



LUDWIG WINDSTOSSER



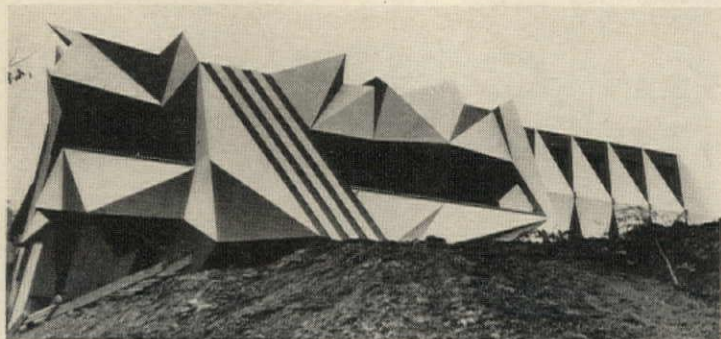


SCULPTURE FROM SWEDEN

Bold impressions of Sweden's climate and weather-ways characterize Ralph Erskine's architecture. This Osterfors factory shows him at work: the sculptured curves are designed both to shelter the necessary equipment and to serve as a "foil for the Swedish wind," Erskine says; the air-intake vents are designed both to start the necessary evaporating process at the right point and to "let in a minimum of Swedish snow." And, fortuitously, the combination of practicality and romanticism looks as handsomely Swedish as any Viking could reasonably wish.

CAR WASH ON THE ADRIATIC

A small pavilion stands on the waterfront at Trieste, sheltering three car-wash stalls beneath its trivaulted roof of reinforced clay blocks. New as it is, it fits nicely into its historic marine setting and bears well the weighty name of its architects, Belgiojoso, Belgiojoso, Peressuti & Rogers.



PUBLIFOTO

EXPLOSION AT CAVORETTO

Designed to express the personality of its sculptor-owner, this vigorous structure at Cavoretto, Italy, looks like the first flashes of a hillside explosion. Architect Enzo Venturelli is pleased with the effect, calls it "Nuclear Architecture, the architectural style of the future." Whether or not the future works out quite that way, the house will be remembered for its resounding comment on the stability of matter.

SERVICE IN WIESBADEN

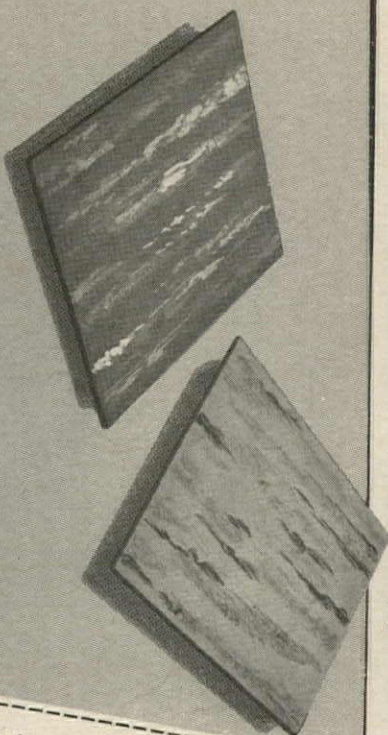
Intended as no masterpiece, this Wiesbaden filling station-restaurant is nevertheless a convincing piece of fresh design. Architect Lothar Goetz was fortunate to have had a client who could be counted on in matters large and small to reject mass-produced solutions. Despite this custom-made generosity, costs ran only 5% above conventional figures.



ARTHUR PFAU

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